International Engineering Interns in Their Own Words: Past Interns Share their Stories and Their Wisdom with the Future

by

Douglas L. Van Bossuyt

A THESIS

submitted to

Oregon State University

in partial fulfillment of the requirements for
the degree of

Bachelor of Arts in International Studies in Mechanical Engineering

Presented June 5, 2007
Commencement June 17, 2007

AN ABSTRACT OF THE THESIS OF

Douglas L. Van Bossuyt for the degree of Bachelor of Arts in International Studies in Mechanical Engineering presented on June 5, 2007. Title: International Engineering Interns in Their Own Words: Past Interns Share their Stories and Their Wisdom with the Future.

Abstract approved: _____
Dr. Joseph R. Zaworski

Students participating in international engineering internships are still relatively rare. It is commonly held that more engineering students would choose to intern abroad if there were role models available, as there are in other disciplines. Profiles of past students, participants, and Alumni serve as role models to perspective students allows prospective students to step into the shoes of those who have gone before. Potential participants can then visualize themselves participating in a program, enrolling in a department, or attending a university. While student profiles exist in many departments and programs, Oregon State University has no profiles of students who have successfully completed an international engineering internship. This document analyzes existing profiles for effectiveness, develops recommendations for writing profiles, and provides several examples of interviews and the resulting profiles. Curriculum vitas are also included to serve as instructional templates for those in the future.

Keywords: International, Engineering, Internship, Student, Profile, Interview.

Corresponding Email Address: Douglas.VanBossuyt@gmail.com

Bachelor of Arts in International Studies in Mechanical Engineering
Thesis of Douglas L. Van Bossuyt
Presented on June 5, 2007

Approved:

Dr. Joseph R. Zaworski (Mechanical Engineering)

Dr. Belinda Batten (Mechanical Engineering)

Dr. Joseph G. Hoff, Academic Coordinator, International Degree Program

I understand that my thesis will become part of the collection of Oregon State University. My Signature below authorizes release of my thesis to any reader upon request. I also affirm that the work represented in this thesis is my own work.

Douglas L. Van Bossuyt, Author

AKNOWLEDGEMENTS

The author wishes to express sincere and deep appreciation to everyone who helped him throughout his education. Without his parents he would have never been motivated to venture abroad. Without his high school German teacher, Frau Owens, he would have never learned enough German to navigate the Deutsche Bahn. Without the kindness and patience of Faiza Al-Saaidi he would never have made it through first year Arabic. Without the discipline, direction, and humor of Karim Hamdy, he would never have finished second year Arabic, would never have explored Tunisia so thoroughly, and would not have been able to conduct his Tunisian internships. Without all of the staff at the International Programs Office, he would never have been able to stay so long in Tunisia and would never have interned in Germany. Without his kind and forgiving bosses and directors, his internships would never have turned out so well. Without the financial assistance provided by Mrs. Struble through the Glenn R. and Juanita B. Struble Scholarship, the author would have never been able to afford going abroad. Without Joseph Zaworski, his thesis advisor, always willing to let the author experiment and try new things, none of this would have been possible. Without the interviews provided Jaime Junell and "John," this thesis would be very empty. The author is also grateful for the many individuals who helped him create a polished product by aiding in the editing process. To everyone that helped make this what it is, THANK YOU!

TABLE OF CONTENTS

International Engineering Interns in Their Own Words: Past Interns Share their Stories and Their Wisdom with the Future

Introduction

While many resources exist to help students decide if they want to attend a university, enroll in a specific college, peruse a particular program of study, study abroad, or intern abroad, very few resources are available to assist engineering students in their choice to pursue an international engineering internship. This thesis attempts to remedy the situation for Oregon State University by analyzing existing student profiles in other disciplines, making recommendations for effective profiles, presenting a series of interviews with three engineering students who participated in international engineering internships, and presenting three example profiles.

The very fact that only three students could be found who participated in international engineering internships shows that there is a large portion of the university that currently does not pursue international internships. A commonly held opinion is that aside from strictly planned coursework, many engineers are dissuaded from going on international engineering internships because there are no role models to look up to [1]. Other disciplines have role models in the form of student biographies and past internship descriptions. The analysis, interviews, and profiles presented in this thesis attempts to provide role models for engineers written by an engineer.

It appears that many departments, colleges, and programs across the Oregon State University campus believe that student profiles are the correct manner in which to encourage potential

applicants, students, and participants. Many websites and printed materials contain humanizing stories of past participants, students, and applicants which allow the reader to step into the shoes of those that have gone before. It is interesting to note that, while five years ago most student profiles were included in printed material, almost all student profiles are now offered both in print and online, or exclusively on the internet. While it is outside the scope of this thesis, it is a commonly held view that this is as a result of the "internet generation" pouring into the university [1]. Additionally, programs and departments appear more willing to take risks on websites which cost very little and can be easily changed and updated as compared to expensive print materials which are largely fixed and carry high costs.

Goals and Objectives

The broad goal of this thesis is to increase the number of engineering students at Oregon State University that participate in international engineering internships. To meet this goal, several objectives have been set including the following. This thesis aims to describe the international engineering experience in a way that is both attractive to and useful for engineering students. Information will be presented in a way that makes clear the important differences in culture between different countries and internship sites. The most important considerations to take into account when looking for, applying to, and conducting an international engineering internship will be identified and discussed.

Background Literature Review of Existing Student Profiles and Related Materials

Introduction

Many resources exist on campus to find international internship information. For instance, the College of Engineering maintains a website [2] with pertinent information on both studying abroad and interning abroad of which motivated students can take advantage. This background literature review does not examine the information available on international internships, the process for applying to international internships, or anything else along those lines.

While profiles of students who conducted international internships exist for disciplines outside of engineering, there are currently none profiling students who have conducted international engineering internships. This thesis focuses on filling in that gap. Thus, this literature review is on student profiles found on Oregon State University websites.

Several collections of student profiles and related materials are examined and evaluated for effectiveness. Effectiveness is defined as the degree to which the author found the profiles empathetic. Outstanding profiles are those that put the reader in the shoes of the profiled student and give the reader the opportunity to step back and say "that could be me." Effectiveness is defined in this way because many people find profiles written in this manner are the most effective at convincing potential students to attend or enroll in whatever program the profiles are associated with. Further, many people find effective profiles generally contain photographs which serve both to humanize and break up the writing,

presenting a more holistic view of the profiled student while also making the profile easier to read.

International Programs Office Student Profiles

One particular profile stands out on the International Programs Office student profile page. Andrew Quiel, an electrical engineering student, studied abroad in Japan and participated in a non-engineering internship. His profile focuses on the ways in which his academic and work experience in Japan changed his world forever. Near the end of the profile he talks about how his experiences will benefit him in the future, specifically singling out his Japanese language skills and cultural sensitivity as being important so that he may work as a cyberneticist in Japan in the future. He ends with giving advice for future study abroad students [3].

Andrew's piece is an exemplar of all of the profiles on the International Programs Office student profiles webpage. Others, such as Blake Bake, go into more detail about the academics of their study abroad experiences, or July Thomson, another electrical engineer, who relates more of her side traveling story, having climbed volcanoes, visited the jungles of South America, and played on the beaches of Ecuador. However, all maintain the same thematic elements present in Andrew's profile [3].

While all of the profiles do include photos of the people, the informal, muddled style of the writing interferes at times with effectively placing the reader in the shoes of the past study abroad participant. As exemplified in Catherine Duncan's profile [3], the tendency to ramble

and miss the point often creeps into the International programs Office student profiles. Perhaps this is a result of too broad of guidelines or lax content oversight.

Anthropology Student Profiles

The student profiles on the Anthropology Department website are not as carefully formatted as others. Three students are profiled in two different ways. Emily Riley's profile reads like an email message she sent to her friends in the department while she was interning in Senegal with a Non-Governmental Organization (NGO). She talks about the important work the NGO does and also mentions her role in the organization. Her profile does not explicitly promote the department nor does it explicitly encourage students to follow her path [4].

The other two profiles are combined together. Two grad students, Danny Karnes and Emily Kearney, are very briefly profiled for their efforts to consolidate international programs and opportunities under one roof, their work revitalizing the Anth/Ling 208/209 courses, and the creation of a course to ease the transition of foreign students into the university [4]. As with Emily Riley's profile, the grad students' profile does not explicitly promote the department nor does it explicitly encourage students to follow in their footsteps. Both profiles have photos attached which do help to humanize the text although poor photos were chosen, being low-quality and taken in ways which makes it difficult for one to put oneself in their shoes [4].

University Honors College Student Profiles

The University Honors College (UHC) website features a series of profiles of some of the more over-involved students. Each profile contains a photo submitted by the student, showing each student's own unique personality. The students profiled all wrote their own biographies following a loose set of instructions provided by the UHC office staff. This creates very personal profiles written from the perspective of the students which all read like friends conversing. The effect creates a very personable set of profiles which entice prospective students to become excited about the UHC. More than anything, the profiles come across as one's older brother or sister telling a younger sibling how fun college can be and how the younger sibling should follow in the elder's footsteps. It is effective in drawing in prospective students [5].

E-Campus Student Profiles

The E-Campus program maintains a website with biographies of successful E-Campus students who have graduated. Examples include Christine Roberts who used the E-Campus to finish her degree when she could not attend physical classes because of her medical condition, Danny Orris who completed his degree in Agriculture while running the family farm, Kim Landry who was able to earn another degree at night while working as a police officer in California during the day, and Steve Ellis who took distance classes while continuing to bartend in Central Oregon [6].

Each profile contained a photo of the person which helps to humanize the text and allows the reader to identify with the graduate. Additionally, each profile was written after the student

had graduated, looking back on their career, but primarily focusing on the actual act of graduation and on the role the E-Campus played in their success. These pieces clearly reflect well on the E-Campus and are written to place the reader in the shoes of the graduate [6].

International Degree Stories

The International Degree Program uses a webpage with stories of past participants to highlight the potential for learning that a student could expect from participating in the program. Currently, the webpage highlights Ashley Blake, a Liberal Studies major, who interned in Costa Rica for three months in the winter of 2006. The story begins with an introduction stating that she found herself at a crossroads in her academic career when she found the International Degree Program which allowed her to blend all of her interests together. The body of the piece describes her research, including IRB approval and research methods. She concluded the story by saying what a wonderful experience it was and summarized what she learned [7].

This story effectively communicates that the International Degree Program is beneficial to students who are looking to integrate several disparate fields of interest into one capstone project. It also conveys that the IRB, something that many undergraduate students shy away from, is not to be feared and was beneficial to her research. Ashley ends the piece with a positive message telling future students who might consider the International Degree Program how valuable an experience it can be. The story contains a photo of Ashley and a friend, helping to humanize the piece [7].

International Degree Thesis Examples

A long list of International Degree thesis examples provides a compelling and somewhat daunting case for the ability of students to successfully complete International Degree theses. Each discipline is broken out under its own subheading making navigation somewhat easier. A thesis title and writer's name are given. No additional information, no abstract, no photograph, no sample, nothing else is given. While the webpage does give a glimpse of the wide range of possibilities under the International Degree thesis umbrella, the impersonal nature of the page makes it difficult to put oneself in the shoes of someone who successfully completed a thesis. Moreover, it is difficult, from this one page, to understand what benefits the International Degree affords [8].

The lackluster nature of the International Degree thesis examples webpage is mitigated somewhat by the larger context of the International Programs Office website which contains student profiles on a separate part of the site. However, it appears that no student profiles specifically dedicated to the International Degree exist which detracts from the ability of the website to humanize the International Degree program [8].

College of Business Alumni Profiles

The College of Business has posted a small list of profiles of past alumni. The profiles originally appear in The Exchange, the College of Business alumni magazine, and are later posted on the College of Business's website. While primarily targeted at the alumni population, the profiles also serve to inspire students. One profile, that of Dale Church, reads like an extended resume, recounting his days in the CIA, the four years he was the deputy

undersecretary of purchasing for the Pentagon, the time spent as chief council for a company producing jamming technology, and his later work where he ventured out on his own [9].

At the very bottom of the article, in the very last paragraph the profile talks about the contribution his education at the College of Business provided to his work life. It almost feels like an afterthought and makes it difficult for the student reader to place oneself in the shoes of Dale Church. This problem of not focusing more on how he got to where he was is repeated in the other profiles. While they give remarkable resumes and glowing editorials of the alumnus' lives, it is difficult to see the connection between the academic and the corporate [9].

Findings

The consensus opinion among several engineering students surveyed is that the most effective profiles are found on the UHC and E-Campus websites [10]. Both do a good job humanizing the writing by including such things as photos but, moreover, succeed because they are written to put the reader in the shoes of the profiled student. The profiles on both sites generally are one to two pages in length, including photos, and do not go into great detail. The author hypothesizes that potential students find shorter profiles more useful because they do not have to sift through a large amount of text to find the most important and relevant information.

These two sites are in opposition on both the style and content of the profiles. While the E-Campus profiles are written in 3rd person interview format, the UHC profiles are written in the first person by the profiled students themselves. Both are viewed as effective. However,

the opinion among several engineering students is that students early in their academic careers will find profiles written in the first person from the perspective of the profiled students to be more persuasive than those written in the third person [10].

It is clear when reading both sets of profiles that clear guidelines were given to the writers. This is especially important in the case of the UHC website due to the profiles being written by the profiled students themselves. Also apparent in the UHC profiles is the importance of editing. Cleanup work has been done by UHC office staff to the student-written text to make it more presentable on the UHC website.

Methodology

Student profiles serve an important role in helping prospective students decide to participate in a program. Because of the lack of student profiles of engineers who have participated in international engineering internships, several feel that engineers are not able to place themselves in the shoes of someone who has successfully completed an internship [10].

The author attempts to remedy this by profiling two students who completed very successful internships [11, 12] and one who had a bad experience [13]. Interviews were conducted to obtain the requisite information to write the student profiles.

Prior to conducting interviews, the author obtained IRB approval. All related IRB paperwork is included in Appendix A. The process was not particularly drawn out or painful but did

take several weeks to complete. The author suggests that future International Degree thesis students start their IRB paperwork earlier.

A 95 question-long questionnaire (see Appendix B) was developed by the author to be used in the interviews. The questions were written to cover the following topics: the process of finding, applying to, and being accepted by the internship; the preparations and expectations that the student made going into the internship; the process of arriving at the internship site and settling into life in a foreign country; compensation and the average workday; the workplace and coworkers; projects, tasks, and assignments; successes and failures on the job; favorite and funny memories of the internship; and lessons learned, seeds planted, and advice for future interns.

All of these categories were specifically included in the interview questionnaire because they are of interest to engineers. Many domestic internship opportunities are available to engineering students and, while many would love to go abroad, engineers must be explicitly shown the intrinsic and extrinsic benefits of interning overseas. Further, these topics were selected in part from content required of presentations given by returning MECOP interns [14]. Engineering students are already used to seeing this format of material which is expected to make it easier for them to digest international engineering internship information.

The author intentionally cast a broad net in writing the interview questions, knowing that people sometimes have roundabout ways of giving information. The questionnaire was used as a script during the interview process by the interviewer. The interviewer wrote down

responses from the interviewee on the lines provided on the questionnaire. The average interview length was one and one half hours when including both domestic and international internships. Domestic internship information is not presented because the author determined that the domestic information was irrelevant to the larger topic after the data were collected.

The sample population was defined as current or recent graduates of the College of Engineering who participated in an international engineering internship. No preference was given to any specific discipline during the selection process. The author worked with the International Programs Office, the College of Engineering, the departments of Mechanical Engineering, Civil Engineering, Chemical Engineering, Electrical Engineering, and Forest Engineering to find potential subjects. Only three were found in the entire college. Two, Jaime Junell and Douglas Van Bossuyt, came from the mechanical engineering department while the third came from electrical engineering. The third subject, referred to as "John," did not wish to be named or identified in this thesis.

Interview summaries are presented in an organized form using the interview question topics as headings. The summaries are an accurate account of the interviews. The author found that, often times, a question under the heading of one topic would spark an answer that was applicable to another topic. This topic-shifting has been accounted for and corrected in the results presented below.

Student profiles are presented which have been condensed and edited from the interview summaries. The student profiles are presented in a website-ready format. Additionally,

comparisons between the internships are made and recommendations for successful internships are given.

Interview Summaries

Interview #1 – Jaime Junell

Name: Jaime Junell [11]
Hometown: Gladstone, Oregon
Major: Mechanical Engineering
Year in School: Junior

Introduction

Like many high school students, Jaime took four years of high school-level Spanish. However, a lack of language skills did not stop her from interning in a non-English and non-Spanish environment. Through connections she made with her high school physics teacher, she found her way into an internship in Italy. After spending two months in Rome and one month in Pisa with VIRGO, the European gravitational wave observatory, Jaime returned to OSU with newfound confidence and self-reliance built from her experiences in Rome and Pisa.

Rome was not built in a day. Nor was Jaime's internship secured without preparation, planning and prior work experience. During her sophomore year of college, Jaime worked in a campus laboratory assisting a professor and her graduate students with their research. This experience not only prepared her to work in an Italian research lab but also granted her a

superb reference and resume which, she feels, played a critical role in securing her internship at VIRGO.

Thanks to her international engineering internship, Jaime finds herself longing to return to work overseas. While she doesn't want to spend her entire life in foreign countries, she does hope to work for several years during her early engineering career in Europe or Singapore. As many international engineers find, Jaime wants to spend her first few professional years abroad before she is tied down with life. She specifically wants to return to the states so that her children can grow up in America. The European Union and Singapore stand out in Jaime's mind because of their high standard of living and strong economies. She specifically does not want to work in the United Kingdom because English is the first language and the culture is too similar to America. The passion and curiosity about culture she developed in Italy will not be found in London, she believes. Opportunities abound for American engineers with a desire to work overseas and the drive to do it. There is no doubt that one day very soon you will find Jaime at one of the major design houses of Europe or Asia.

Finding, Applying for, and Being Accepted to the Internship

Jaime didn't originally intend to intern abroad. In high school, her physics teacher participated in the Laser Inferometer Gravitational wave Observatory (LIGO) outreach program. Through conversations with him, Jaime discovered a potential internship opportunity at LIGO's facilities outside of Richland, Washington. She applied to the LIGO internship program, sending in an application form, a resume, letters of recommendation, and an essay explaining why she wanted to intern for LIGO. She was accepted into the LIGO

program but turned it down, not wishing to relocate to the vast expanses of nothing found at the Richland facility.

Several months later, LIGO emailed her again, proposing she intern in Italy with LIGO's sister organization, VIRGO. Jaime jumped at the chance, sending in a Curriculum Vitae which she created by modifying her resume. An email exchange followed where further questions were asked and answered and, before she knew it, she was accepted to an internship with VIRGO.

Preparations and Expectations

When asked how she prepared for her internship with VIRGO, Jaime laughed, stating that she didn't really prepare but wishes she had. Knowing no Italian, Jaime armed herself with an Italian phrase book. Having no idea what she would be doing on the job, Jaime searched out and read papers online written by the professor she would be working under.

Looking back on the experience, Jaime recommends that anyone preparing to leave for an overseas internship should take an introductory language course to arm themselves with the basics and create a framework to build upon. Jaime was not able to take any Italian classes as she only learned about and was accepted to the VIRGO internship during spring term. She also suggests that future interns study specific technical material relating to their roles in the workplace before they leave. Interns should learn what they should become familiar with by asking their employers long before they leave just what sort of tasks and assignments they will be responsible for.

Asking questions about one's future role with the organization not only helps to determine what material to review but also motivates the company to solidify the tasks and assignments the intern will be given. As Jaime found out, this can be something very important to do before ever setting foot in the office. She found that there was some confusion between LIGO and VIRGO as to who was responsible for giving her assignments. VIRGO expected her to show up for work and complete a small project over the summer but didn't expect to have to give her that project, assuming that LIGO would supply the necessary information. She expected that VIRGO would supply her with assignments suited to her knowledge base and background. After some initial angst, the internship was successful but, had the question been asked before she left, Jaime feels that her internship would have been a better experience.

Arriving and Settling In

When Jamie first arrived in Rome, she settled into a student hostel run by a convent of nuns. VIRGO had assisted Jaime in securing housing in the hostel prior to her leaving the United States. The nuns all lived on one floor with a floor full of women students on another floor. A third floor was rented out to tourists. Jaime had a room with a sink. The toilets and showers were down the hall and shared among all the women. A community kitchen, dining area, and TV room with couches was in another part of the building. Some of the other residents spoke a little English but many did not. All of the other students were friendly and accommodating to Jaime. The nuns set a strict curfew of 10pm on weeknights and midnight on weekends.

In Pisa Jaime lived in student housing where she had her own room, bathroom, and phone booth-sized kitchen. This housing arrangement was also secured for her by the VIRGO staff. Jaime was very happy about there being no curfew at her Pisa residence.

When Jaime returned to Rome in September she did not want to return to the convent and the curfew. The local Rome staff of VIRGO found lodging for her at a bed and breakfast which she describes as "cute." The bed and breakfast afforded her a tiny room. The bathroom was shared with the other guests but she was allowed to come and go as she pleased. The bed and breakfast also supplied her with breakfast every morning.

Jaime's first day on the job, and her first day in Rome, was not exactly what she expected. She arrived at her boss's office to find him unprepared and busy. He introduced Jaime to one of his doctoral students, Veronica, who was to become Jaime's direct supervisor. She, too, was busy, having spent too much time as a student and needing to complete her dissertation. Having met everyone in the lab, they all went out to an introductory lunch. Tired from her transcontinental voyage, Jaime went home to rest. The following day, Veronica introduced Jaime to her research project and attempted to explain the basic physics concepts behind her research in halting, broken English covered with a thick Italian accent.

Compensation and Workday

Jaime's internship at VIRGO came with an attractive stipend and travel allowance. Funding from the National Science Foundation (NSF) paid for her plane ticket to Italy while LIGO

supplied a $5,000 USD stipend for the summer. Her compensation package from LIGO matched that found at LIGO's American internships. It should be noted that due to the Dollar to Euro exchange rate, Jaime's purchasing power was lower in Italy than it would have been in America but it was not significant enough to lower her standard of living or affect her ability to participate in the VIRGO internship.

On average, Jaime worked 40 hours per week and received a week of vacation in August. Medical and evacuation insurance, covering medical and mortuary repatriation, was provided as part of her funding. She also received advice and assistance from her coworkers which proved to be a very real but non-monetized benefit.

Workplace and Coworkers

The research lab in Rome was housed in the University of Rome in one of the many buildings on campus. Many machines whirred and clicked around the lab, performing their functions. Another graduate student worked in the lab with Veronica, focusing his studies on specialized electrical physics. Veronica worked on the VIRGO cryogenics research and development project. The lab was buried deep in the basement of the building which created an incredibly hot environment the day the air conditioning broke down.

No specific space was designated for Jaime in the lab. There was a shared computer workstation which she used but otherwise no additional equipment was provided or needed for her assignments. She was given a key to a locked room above the lab which she shared with several other people to store her things during the workday.

In Pisa Jaime found herself working with Fredric, an engineer from France. She describes Fredric as a stereotypical jolly Frenchman with a stereotypical French laugh that always brought a smile to her face. Roberto, the chief vacuum pump technician on the VIRGO project, took time to show her the experiment stations and explain how some of the equipment worked. She had a private cubicle with computer in Pisa.

Projects, Tasks, and Responsibilities

In Rome, Jaime primarily helped Veronica build experimental equipment and maintain the lab. She often found herself without a task to perform and used the free time to research her next weekend trip through Italy. Looking back on her experience in Rome, Jaime feels that she would have been given more substantial and meaningful assignments if she had asked her boss what her tasks would be prior to arriving.

In Pisa, Jaime analyzed several design concepts using sapphire cables to suspend mirrors used to reflect lasers inside of vacuum chambers. She learned how to use ANSYS to analyze the loading and thermal characteristics of the concepts. It was explained to her that sapphire had been identified as a potential cable material because it has good thermal conduction properties at near zero Kelvin. In the end, the simulations indicated that the sapphire would fail due to shear stresses along the bonding points with the mirror. Jaime wrote a report documenting her findings. While the results of her work seemed a failure at first, the results steered VIRGO away from using sapphire and toward more suitable materials.

Roberto, the Pisa-based technician, took Jaime on his rounds maintaining the many vacuum pumps that maintained the VIRGO experiment at near zero absolute pressure. Together, they cleaned out several systems, documenting their work with photographs, and helped ensure that the experiment could continue, uninterrupted.

The lab in Rome found Jaime with a low degree of autonomy. She was told what to do and did it. There was little room for creativity but she did monitor her own work and set her schedule. Pisa afforded a greater degree of autonomy with her work but required a great deal of interaction with Fredric to fully understand the problem and learn the software.

Success and Failure on the Job

While her time in Pisa was productive, Jaime believed that her time in Rome was not as worthwhile as she would have liked. She felt that her presence in Rome didn't benefit Veronica or her boss. Often times, it took Veronica longer to explain the task to her than it took for Veronica to do the task herself.

Jaime's work in Pisa, while brief, was very successful. In spite of only being in Pisa for three weeks, with a week of vacation in the middle, she learned a new software package and produced significant results which helped to further the larger VIRGO effort.

Memories, Memories

While sitting at the fountain in Piazza Della Republica, Jaime learned an important Roman lesson. A man came up to her, apologizing for his intrusion. He informed Jaime that she was sitting on the wrong side of the fountain. This side of the fountain, he informed her, was where prostitutes and other women of ill repute sat, advertising their services and waiting for customers. Jaime looked around, spying several women wearing clothes provocative even for Rome. Cars circled the Piazza, slowing down as they passed her side of the fountain. He also informed her that the other side of the fountain was designated for men, selling their own services. Several men wearing attractive clothing, one with a small poodle, idled around the other side of the fountain. If she wanted to sit by the fountain, the man said, she should sit on the men's side so as not to be mistaken for a prostitute. Jaime left, not wishing to sit with either sex of prostitute and returned to her home, shaken from the experience. Back in America, when asked for her funniest or most embarrassing memory, Jaime told this story. Not only was it a hilarious and embarrassing experience in retrospect, it also taught Jaime to be more aware of her environment.

Jaime's favorite memory of Rome came when the Italian national soccer team won the World Cup, narrowly beating arch-rival France. Circo Massimo, the racetrack where Roman charioteers once rode, was flooded with 300,000 screaming, rabid fans waving Italian flags and singing traditional Italian soccer songs. Italy won. The crowd went wild, surging like waves being driven against cliffs in a storm. The streets of Rome flooded with fans, cheering and singing. Jaime made it onto one of the last busses to run that night before all traffic in

Rome was ground to a halt by the millions of soccer fans parading through the streets, celebrating the victory.

For Jaime, memorable moments did not come from the workplace but, instead, life. Exploring Rome, watching a soccer game, touring museums, and meeting locals all were favorite memories which she will treasure for the rest of her life. The workplace fades into the mists of time but memories of fountains and soccer last a lifetime.

Returning Home – Lessons Learned, Seeds Planted

While parts of her internship were quite frustrating, Jaime came away from her internship feeling she had acquired valuable skills both in engineering and life. She learned the basics of ANSYS, a software package many mechanical engineers never experience but want to use. Her Italian went from fumbling through a little pocket phrase book to being able to navigate the country. While she can't quite quantify exactly what she learned, she knows that she learned a good deal about the culture of Italy through living and traveling, and she learned something about herself. Discovering and successfully navigating the Italian train system was a personal accomplishment for Jaime who did not have a very good sense of direction prior to her time in Italy. Now back in America, she finds her sense of direction has greatly improved, thanks to the many days she spent lost, wandering in Rome.

Patience, a virtue many espouse but few practice, became a hallmark of Jaime's time in Italy. Not the most patient person in the world before her internship, she found that, without patience and a smile in the face of adversity and challenges, she would not have been able to

get through the day. This idea of patience also played a role in her ability to observe and better understand how people work together, be it in Pisa or in Portland. She watched her coworkers interact at VIRGO. The physicists often didn't listen to the engineers who often didn't listen to the technicians. The secretaries ran the show while the technicians kept the sky from falling. The complex dynamic of human interaction and class distinction in the workplace fascinated Jaime, teaching her valuable lessons about the office dynamic which she plans to apply to her future career.

As is often demonstrated on the internet, nerdiness transcends international boundaries. Jaime found that, to feel at home, all she had to do was traipse over to the nearest engineering department where she would be surrounded by people just like the ones she knew back home. A nerd is a nerd regardless of culture or country and a nerd likes the same sorts of activities in Rome or San Francisco. While not a nerd herself, the engineering department at the university made her feel at ease and welcome whenever she longed for home.

By far the biggest change in Jaime, brought about by her overseas internship, is her newfound sense of independence. Being alone in a foreign country surrounded by a foreign tongue forced Jaime to learn how to live and travel on her own, creating a very self-reliant person in the process. Going to Italy was the first time in Jaime's life that she had been away from her family and friends and without a safety net. While she did find it very lonely at times, especially when she came home from work and had nowhere to go and nothing to do but sit in her room, she also found that she met many new and wonderful friends at work and in her travels. Her new friends taught her another valuable lesson: how to keep friends over

long distances. She continues to maintain strong friendships with her Italian friends and has found that she has become a better friend to those closer at hand.

Does Jaime feel she benefited from her Italian internship? Absolutely. Would she do it all over again? Absolutely. Did she make some mistakes? Yes, but she learned valuable lessons from them and wishes, through her story, to help future international engineering interns avoid repeating her mistakes. If Jaime turned into the confident, outgoing, fun person she is today, just think of what an international engineering internship can do for you!

Interview #2 – Douglas Van Bossuyt

Name: Douglas Van Bossuyt [12]
Hometown: Newberg, Oregon
Major: Mechanical Engineering, International Studies
Minor/Option: Business Administration
Year in School: 6th year senior

From an early age, Douglas looked overseas. His parents felt it important for him to be exposed to the world beyond the small town of Newberg. They hosted six exchange students over the course of Douglas's adolescence, each one living with the family for a year at a time. Though Douglas was an only child, he grew up having six brothers and sisters from all around the world. Not only did the world come to see Douglas but Douglas also went out to see the world.

His parents took him to visit relatives and tour Central Europe during the summer after his 5th grade year, spending half the summer overseas. In middle school, Douglas journeyed to

Japan as part of a sister school exchange program where he got his first taste of being surrounded by a markedly different culture. He acquired a weakness for sushi and great respect for the people who tend Japanese gardens. During early high school Douglas and his family visited friends in Morocco, continental Europe, and toured the United Kingdom. Later, he spent part of a summer living in Germany as part of the German American Partnership Program. During his senior year of high school, Douglas traveled to Egypt to visit his aunt and uncle. His uncle worked as an expatriate for British Petroleum. Through his Moroccan and Egyptian exposure, and his uncle's overseas experiences, the hook was set that led Douglas to intern overseas.

In college, Douglas found himself studying Arabic by chance. One of his friends found Arabic in the course catalog, being offered for the first time at Oregon State. His friend, not wishing to take the class alone, asked Douglas if he would join her in the class. Douglas agreed, showing up on the first day of class only to find that his friend had dropped the class without telling him. Douglas stayed for that first day, curious about what the class would be like. Two years of Arabic coursework later, Douglas found himself in Tunis, Tunisia, on the southern shores of the Mediterranean Sea in North Africa on an OSU Study Abroad program.

While in Tunisia, Douglas arranged with the OSU IE3 international internship program to stay beyond the end of the study abroad program to intern in Tunisia. He soon found himself interning part-time for two different companies at the same time in Tunis for the following six months. While working in Tunisia, Douglas applied and was accepted to a DAAD-RISE research internship in Germany where he interned fulltime for three months.

Tunisia: Finding, Applying for, and Being Accepted to the Internship

Douglas found his two internships in Tunisia through one of the Tunisia study abroad program directors, Karim Hamdy, who, through his personal connections, arranged for Douglas to intern at Marbrerie Tunis Carthage (MTC), a marble tile and marble products factory, and Centre d'études maghrébines à Tunis (CEMAT), and American overseas research center. Douglas submitted his curriculum vitae to both MTC and CEMAT for review by their respective directors and followed up with visits to the factory and the research center. Douglas was also interviewed during a party by the director of CEMAT. Karim notified Douglas of his acceptance at MTC while Douglas's boss at CEMAT, Dr. Jim Miller, notified him in person.

Preparations and Expectations

As Douglas was already in Tunisia, already spoke some Arabic and understood some French, and knew the city of Tunis well, he did not have to go through many of the preparation steps that an intern arriving directly from the United States must do. Douglas was briefed by Karim about the different expectations of an internship in Tunisia versus America. As Douglas would find out, he was expected to watch, listen, and observe rather than work.

Arriving and Settling In

Rather than the normal confusion and disarray of settling into a new country, new living situation, and new job, Douglas only had to adapt to his new working environment. He

already lived in the basement apartment of a villa in a nice section of Tunis. The villa even came equipped with a swimming pool which Douglas used from time to time when he did not feel like taking short trip out to the beach to swim in the Mediterranean Sea. He already knew where to go to buy the necessities of life, where to go for entertainment, where to check his email, and how to get around town on public transit. What Douglas didn't know and was concerned about was how he would fit in at his new internships.

Douglas's first day on the job at MTC was spent with Sophiene, the director of the factory. He was led through the factory, Sophiene explaining the functioning of different machines throughout the plant. Douglas was introduced to Hamza, the director of information, known in the west as the IT guy, and several of the plant employees who worked on various machines which Sophiene felt Douglas might be interested in examining. On Douglas's first visit when the internship was secured, he also met Rajib, the gate keeper, who eagerly greeted Douglas on his first day on the job, telling him to ask if he had any troubles at the plant or needed anything at all. The first day was brief, only consisting of the tour.

The first day at CEMAT was similar to MTC, with introductions to Riadh, the assistant director, and Faouzi, the building supervisor. Jim showed Douglas the center's library, map room, and conference facilities. He also showed Douglas their troublesome computers which often refused to cooperate, were not networked, and only could access the internet through dialup modems, hindering the research center's ability to communicate with the outside world and slowing the pace of work. Jim, Riadh, and Douglas all went out to lunch together,

celebrating Douglas's arrival. In the afternoon, Douglas shelved books in the library, replacing the few volumes on the shelves that had been used that day.

Compensation and Workday

Neither internship was directly compensated. Tunisian interns, whether domestic or foreign, generally are not paid for their work. Douglas did not make any money from his internship at MTC but did end up being paid for some of his work at CEMAT. He was paid 400 Tunisian Dinars, or the equivalent of about 300 USD at the time, for his work installing a computer network, fixing computers, and bringing hi-speed internet to the center. Later on, he was paid 1000 USD to extensively assist with a three week long program near the end of his stay in Tunisia. As part of that program, many of Douglas's food, lodging and transportation expenses were also paid for by CEMAT.

No set hours or schedule was ever established for Douglas at either one of his internships. He generally tried to visit MTC two or three times per week for several hours at a time while he at first worked at CEMAT for two or three days a week, growing to four or five days a week by the end of his internship. The typical workday at MTC for the factory workers was from 7am to 330pm with breaks for lunch and prayer. CEMAT operated from between 8 and 9am until 4pm with an hour break for lunch at noontime. MTC ran six days a week while CEMAT was open only five. Many Tunisian companies were open six days a week, with half days on Friday and Saturday.

Workplace and Coworkers

No specific work area was made available to Douglas at MTC. He was allowed full access to the factory, filled with industrial marble milling equipment, choked with dust, always wet from the spray used to keep the equipment cool and marble dust somewhat under control. He also had access to the corporate offices where he would meet with Sophiene and Hamza.

At MTC, Douglas quickly became friends with Hamza, Rajib, and Sami, one of the light truck drivers. Douglas and Hamza had many long conversations about the world, America, Tunisia, and politics. Hamza wished for his son to travel to America so that he could study engineering in an American university. Douglas helped Hamza find information about opportunities for his son in America. As the IT man for MTC, Hamza had cobbled together a network of computers stretching across the office and factory, connecting the furthest reaches of the plant with fiberoptic cables. The server, a hodgepodge of old parts built into a functioning machine, ran in his office, containing all of the information that the company used to operate. When Douglas asked Hamza why only the director, Sophiene, had an internet connection, through a dialup modem no less, Hamza laughed, saying that they had no need for the internet and that it would only make his job harder, with viruses sneaking into his network.

Sami and Douglas first met when Douglas had to visit a vendor across town. Sami drove him to the appointment, talking to Douglas about America, Tunisia, and the Qu'ran, the holy book of Islam. In Tunisia it is not taboo to talk about Islam and attempt to convert the non-believing in the workplace but it is completely forbidden by law to try to convert anyone to

any religion other than Islam. Sami and Douglas spent many evenings together, drinking tea in the cafés of Tunis, eating dinner at restaurants in Sami's neighborhood, or enjoying late-night pastry snacks on Sami's street. Often times, Douglas could be found sitting with Rajib in his gatehouse, talking about world politics and Islam. Rajib took it upon himself, along with Sami, to teach Douglas more about Islam with the hope that he might convert and also that he would tell others in America that Islam wasn't the enemy, there being many good people following the prophet Mohammed.

Douglas found that, aside from Sophiene and Hamza, no one else at MTC spoke English. Only the office and professional staff spoke French while all of the production workers and laborers only spoke Tunisian dialect Arabic. Douglas's language skills were put to the test and improved immensely from working at MTC. While he feels that he is not truly fluent, he believes his time at the marble factory helped to strengthen and shape his linguistic abilities.

At CEMAT, Douglas commandeered the map room, turning it into a frequent workspace. At times, he also shared Faouzi's office. Douglas brought his own laptop computer with him, preferring to work on an English-language keyboard. On many days, Douglas would be found working in Riadh's or Jim's offices fixing their computers.

Jim was a professor on sabbatical from Clemson University in South Carolina. He was a geographer by trade and had landed in Tunisia first in the late 60's when he was in the Peace Corps. Now back in Tunis, he spent most of his time arranging academic conferences, assisting visiting researchers with their research, and dealing with the mountains of

paperwork the Tunisian government required CEMAT complete on a monthly basis. Riadh was the glue that held CEMAT together, handling the day-to-day functioning of CEMAT and acting as the institutional memory, as the director changed every few years. He always had a smile on his face and was eager to hear and tell jokes. Faouzi only spoke some French and Tunisian dialect Arabic. He and Douglas often jovially exchanged insults, teaching one another how to say horrible things in each others languages. Jim sometimes had to put a stop to Faouzi and Douglas's banter when their excited exchange of new words became loud enough to be heard on the telephone.

Projects, Tasks, and Responsibilities

At MTC, Douglas spent the first month walking around the factory, observing how the operation functioned and taking notes on what he thought could be improved. During his second month, Douglas was tasked with examining the computer controlled marble milling machines to see if he could discover the source of problems the plant had been having with operating the machines at maximum production. During his third month, Douglas suggested that he could examine one of the large marble cutting machines to see if some of the manual controls could be automated, freeing up the operator to do more important tasks and run the machine at higher speeds. Sophiene agreed to let him examine the machine for potential upgrades.

Douglas first came to CEMAT to help with the research institute's dilapidated website, having long been abandoned and never updated. Soon after his start with CEMAT, he found that the internet connection was in sore need of upgrade. He pitched the idea to Jim,

suggesting they install a network and hi-speed DSL. Jim agreed, delighted to have someone working with him that could bring the 21st century to the center. Douglas and Jim negotiated a contract where Douglas was paid for his work the equivalent of a month or a month and a half's salary for an average Tunisian worker. The length of the project turned out to justify the wages.

As the internet project progressed, Douglas found that he could be useful to CEMAT in other ways. He helped Jim and Riadh hold an international conference on the rise of cities in the Maghreb. Later, he assisted with a Fulbright Islamic scholars' conference, handling some of the logistics work. Douglas found himself a much larger role when CEMAT hosted a group of 15 American college students for three weeks as part of an Arabic immersion program. He was assigned to accompany the students everywhere, serving as translator, guide, and, occasionally, bodyguard.

Success and Failure on the Job

The internship at MTC was largely a failure from the classical American prospective. Douglas was not able to determine the root cause of the marble milling machine problems. While he was there, one of the machines broke, requiring a technician be dispatched from Italy with the proper spare parts and tools to fix it. Douglas could do nothing because the company only owned a maintenance manual and not a detailed schematic of the machine. Additionally, no spare parts were available in the country, requiring that all of the replacement modules had to be brought from Italy regardless of if the root problem could be found.

The large marble cutting machine received a thorough analysis from Douglas. Every facet of the system was examined. Douglas drew up a plan to automate most of the functions, freeing the operator of many of the tedious tasks he had previously been required to perform. Sami took Douglas out to the headquarters of the branch of a company that manufactures Programmable Logic Controllers (PLC's). Through his conversations with the PCL company, Douglas discovered that it would cost far in excess of the annual salary of the man who ran the machine to upgrade and automate the equipment. In fact, nearly ten workers could be hired to run the machine rather than automate it.

In spite of the failure of Douglas to be of direct economic benefit to the company, he feels that he was beneficial in other ways. Through working there, he introduced the workers to an American who was not a war monger and who wanted to learn the language and culture. He also helped to ease Hamza's fears over sending his son to America and related his experiences at American universities. Moreover, Douglas rose the standing of Rajib and Sami in the eyes of their coworkers at MTC by befriending them.

The original work that Douglas had come to CEMAT to perform, updating and renovating the website, remains untouched nearly two years later. The web server where the website resides is inaccessible to CEMAT staff, being hosted through an emeritus faculty account at the University of Texas.

Douglas's other CEMAT activities were much more successful than the website. Even though it took three months to navigate the red tape to get DSL installed and just as much time to locate an Ethernet hub, CAT-5 cable, RJ-45 connectors, and a crimping tool, he managed to bring the 21st century to CEMAT. It took months of searching to find an Ethernet hub in Tunis, finally located at a small computer shop tucked away on the other side of the city. A wireless access point, completely unheard of in Tunis up until that point, was shipped through diplomatic channels and installed, bringing the first hotspot to downtown Tunis. Riadh and Douglas, not wishing to pay exorbitant prices for an RJ-45 crimper, found a man who would come and crimp the Ethernet cables for them. The man would not rent or loan the tool but instead insisted that he come in person to do the work.

The biggest success for Douglas came from working with the American college students near the end of his time in Tunisia. It felt for him like a capstone project, bringing closure to all of the hardships and triumphs of living in Tunis. Douglas remains close friends with many of the students he accompanied. Since the end of the program, many of the students have changed their majors to focus on the Middle East and North Africa, learning Arabic, and studying Islam. The original goal of the program was met. Partially thanks to Douglas's work, many of the students changed their focus from domestic to the international stage.

Memories, Memories

Douglas shares with us two of his more memorable experiences from Tunisia. He feels these were some of the most dangerous, exciting, and exhilarating things to happen to him. Ever the thrill seeker, always looking for new and more dangerous places to travel, Douglas got

his fill in Tunisia and loved every minute of it – at least after he was able to slow his heart rate down and recover from the shock.

His first memory comes from a weekend trip he took to the west of Tunisia near the Algerian border. His first indication that he had been in Tunisia a little too long was when he started being mistook for an Algerian.

> I arrived at the main bus and louage (shared long distance taxi) depot in Kasserine at dusk. All of the louages had already left for the night. The nearest hotel, the prison-like youth hostel, was over three kilometers away and the local taxis looked hungry. I asked a man at the station if there were any more buses that night. In fact, there was one bus that would depart in two or three hours, and for, of all places, Tunis! I decided to take this bus.
>
> I settled down for a several-hour wait outside the bus station in Kasserine. The stars came out, some soldiers arrived to wait for the bus and the little café, run by a man and his Down Syndrome-affected assistant, closed for the night. At about 10 p.m., one of the men sitting next to me asked for the time in Tunisian Arabic. I was wearing a little black skull cap that I bought in Tunis to keep my ears warm. We soon struck up a conversation that carried on for a good 30 minutes until the bus showed up.
>
> As we were getting ready to get on the bus he said (in Arabic) "So... You aren't from Tunisia, are you? I know! You're Algerian!" I said, much to his utter astonishment "No, I'm not Algerian." He then said "I know! You must be Libyan!" to which I responded, "No, I'm not Libyan." Quite confused, he asked, "So if you aren't Algerian and you aren't Libyan, what are you? You speak Tunisian Arabic with an accent so you can't be from Tunisia." I replied, "I'm American." He looked at me, blinked, and didn't say another word. His brain couldn't process what I had just told him. I was an American, I spoke Arabic, and I was boarding a night bus near the Algerian border bound for the capital of Tunisia. He sat in the front of the bus and got off after a few stops. I never saw him again. I sat in the back of the bus with the soldiers on their way to Tunis. I paid my fare, settled into my seat, pulled my cap down over my eyes, and drifted off to sleep to the reassuring roar of the diesel bus engine.
>
> Around 1 a.m., I briefly regained consciousness to realize that we were entering Le Kef. I didn't realize that the bus ran through Le Kef. Instead of making the straight shot to Tunis, we got a scenic night tour of Tunisia along the Algerian border. I drifted back to sleep.

Something was jabbing my face. What was all that noise? Light suddenly flooded into my vision as my cap was pulled up above my eyes. I couldn't make anything out. Someone was shouting at me. There was a cold piece of round grey metal poking my forehead. My eyes began to focus. I could see a muzzle. I could hear Arabic. I could make out a large clip, a finger, and a trigger. There was a man shouting at me. He sounded very cross. The world finally came back into focus. An overzealous National Guard officer had a fully loaded AK-47 pointed squarely between my eyes, his finger was on the trigger, and was shouting at me in Arabic, something along the lines of "Okay, you Algerian scum! Show us your papers or your head will go missing!"

I fished a photocopy of my passport out of my left pocket and handed it to the officer. He stormed off the bus after collecting identification from a few other passengers. Several minutes later he came back on and asked very politely, in French, for my original passport. I handed him my passport upside down, obscuring my nationality a few seconds longer. He grabbed the passport and stormed off the bus.

After about ten minutes a different, more senior officer came onto the bus and started handing back identification papers. Mine was the last. He said to me in broken French, "I'm so sorry for the inconvenience. There's been a mistake. We thought you were someone else. Please enjoy your stay in Tunisia." I put my passport away, pulled my skull cap down over my eyes and went back to sleep as the bus pulled away from the roadblock.

Something was jabbing my face. It was cold and felt like steel. What was all that noise? More light. Oh no. Not again. As I feared, I was once again staring down the barrel of a fully loaded AK-47 being pointed at my temple by yet another fine officer of the Tunisian National Guard. Again, he yelled at me in Arabic. This time it was something like, "Give me your papers you son of an Algerian whore! Wake up or die!" I handed him my passport straight off this time, not wanting to delay the bus any more than necessary. He snatched my passport and tromped off the bus.

Ten minutes later he came back on the bus, visibly shaken, and handed back my passport. He said to me in French, "I'm so sorry for the confusion. We mistook you for someone else. Please have a nice time in Tunisia." I looked out the window as we pulled away. Across the road a small 1970's-era Renault R4 pickup was pulled over to the side with three people standing outside in the glare of the headlights of a large National Guard Land Cruiser. A guardsman had a rifle trained on the little group while another radioed back to headquarters with a whole stack of papers spread out on top of the hood of the Land Cruiser. Stacked in the back of the pickup several dozen sheep waited quietly. It seems I wasn't the only one getting the full treatment that night. I drifted back to sleep.

I woke up with a start when the bus engine died. I pulled my cap up and peeked outside the window. A few small streaks of orange blazed across the sky. It was 4:30 a.m. I had no clue where we were. I asked one of the military men sitting near me for our location in Arabic. This was the first time I had spoken since I got on the bus.

> Never during the two incidents had I uttered a word. The man stared back at me, not comprehending his own mother tongue. I asked again. He continued to stare. I asked in French if he spoke Arabic. I asked in French again. He suddenly realized that, in fact, I spoke Arabic and that I was speaking to him. A broad grin broke out across his face as he told me "We're in Tunis at Bab Saadoun." I said thanks and told him good morning. I got off the bus and walked the four kilometers to my house as dawn broke over Tunis. It had been an eventful night.

Douglas also found excitement in the Medina, unexpectedly becoming the champion of the college students he was accompanying through Tunisia for CEMAT.

> At the time of the knife fight, nine months after first arriving in Tunisia with only a rudimentary understanding of Arabic, I had integrated into Tunisian society and life. Not only could I buy alcohol on the black market on a Friday right alongside the Tunisians, but I also found myself able to converse at length in Arabic. I also discovered that I was able to swear up a storm when the time was right.
>
> It was a hot June day in the Tunis medina (old city center). I was accompanying two female college students through the covered souks (markets). They had just arrived a few hours earlier, fresh from America. One of them had never been off the farm before. Tunis was the largest city she ever visited. This woman had her camera dangling off her wrist when a man walked by, broke the strap, and took off running. I chased after him and caught up quickly when he wheeled around, stabbing and slashing, trying to cut me with his singing blade. Until he attempted to gut me I didn't realize he had a knife. He had it hidden in a piece of brown paper. I yelled for the police in Arabic.
>
> A panicked look filled his eyes as he realized I was not the average tourist. He took off again. I chased. I nearly had him when he tossed the camera aside. I let him go because, at that point, there was little reason for me to risk getting stabbed again. I yelled after him "Yatick Asbah" which translates roughly to "I wish you had a penis". It's very bad in Tunisian Arabic. I swore a good deal more as some men came running down to see what had happened. The men who came to our aid had a conversation in Arabic with me about the problem of the medina and the people. They wanted to make sure that we knew that all Tunisians weren't like that and that it was just one or two bad apples; that it could happen anywhere in the world. It could have happened as easily on the streets of New York City, Paris, or Tunis.
>
> The woman whose camera was stolen was shaken up. We went back to the main tourist market, entering the first shop with a friendly looking salesman. I told him what happened. He took us in, had her sit down, and gave her some water. I translated from Arabic into English for the women and vice versa for the shop

> keeper. His soothing words calmed the woman down, helping to restore her confidence in the world. I was furious that such a thing could happen in Tunis. I told him over and over that even though I'm from America, I am Tunisian. I was enraged that one guy could give Tunisia and all Tunisians such a bad name. He asked if we wanted to go to the police and file a report. I said no. No one was hurt, no real damage was done, and the assailant was long gone. We had no need for red tape and paperwork.
>
> We stayed with the shop keeper for a half hour. He was very concerned about our wellbeing. He said that in the last few months the medina had become a bit rougher. He told us to come back another day and he'd make sure that we had a better time in the medina.
>
> We revisited our shopkeeper friend a few days later. There were no knives and there was no swearing. We had a much better day in the medina.

By no means was Tunisia filled with guns and knives, always out to hurt wayward engineering interns. It just happens that Douglas felt these were his most memorable moments while in Tunisia. In fact, he says that crime is so low in the country, police often cause traffic jams just so they have something to do. Out of all the people he knew in Tunisia, his experience was one of the most exciting. Most people are never fortunate enough to have such adventures.

Germany: Finding, Applying for, and Being Accepted to the Internship

Douglas first found out about the Deutscher Akademischer Austausch Dienst – Research Internships in Science and Engineering (DAAD-RISE) program through an email sent out by the International Programs Office at Oregon State University. He researched the program further, reviewing the DAAD-RISE website in detail. One particular internship stuck out, calling to Douglas. He applied to the internship, submitting his curriculum vitae, a cover letter, academic transcripts, and a letter of recommendation and reference from his

university. A month passed before he received an email and telephone call congratulating him on his acceptance to the program. A large packet came in the mail, containing many of the details of the internship. Douglas was going to Germany.

Preparations and Expectations

The internship description stated that Douglas would be designing components for humanoid robots at the University of Karlsruhe in the Institute for Product Development. He examined their website, paying close attention to the active robotics projects. Prior to college, Douglas had worked for several years in a robotics research and development lab and had constructed a life-sized humanoid robot. Searching through the internet, Douglas found other examples of German and European efforts in the field. He found the development and core technologies to be largely the same, reassuring him that he would be of use to the institute.

Heeding the advice of DAAD-RISE, Douglas contacted the host university, connecting with his future boss. They discussed potential projects and appropriate skill sets for Douglas to be an effective part of the team. Pro-Engineer, the software package used by the university, ran only with German language support on the work computers. Douglas refreshed his Pro-E memory by using the English-language version prior to arriving in Germany.

Having seen the project and talked with his future boss, Douglas expected to design components that would be implemented on the humanoid robot within a short timeframe. He prepared to work in a fast-paced environment where he would be pushed to perform at his

peak. Christian, his boss, prepared for someone who would be creative but not proficient at design.

Arriving and Settling In

Christian met Douglas at the train station in Karlsruhe. Together then went to Douglas's new room. Before Douglas arrived, he had been in communication with Christian to arrange for housing. Christian found Douglas a room at a private international dormitory several blocks from the university. While Douglas had his own bedroom, he shared the kitchen and living area with a woman from Iran working on her PhD.

Douglas's first day on the job was spent being introduced to the rest of the staff, all PhD candidates working under one professor. They all went out to lunch together, celebrating Douglas's arrival with beer. Christian showed Douglas his workspace and outlined the project Douglas would be working on. They also setup Douglas's university computer account so that he could work on the machines.

Compensation and Workday

The DAAD-RISE program paid Douglas a monthly stipend of 650 Euros. This was enough for Douglas to pay his rent and live comfortably but was not enough to cover his airplane ticket or extra travel. The money was paid into an account Douglas setup with Christian at a local bank. This allowed Douglas to directly access the money through a debit card at

ATM's throughout Germany without being charged large transaction fees as his American bank card would have done.

The normal workday for the PhD candidates at the institute usually ran from 8am until 7pm five days a week plus additional work on the weekends. Douglas was very glad that he was not held to such hours but instead was assigned a project with a deadline that he could work on whenever he wanted. Usually, Douglas worked from 9am until 4pm with an hour break for lunch. This gave him ample time to complete the project during his internship.

Workplace and Coworkers

A computer lab normally occupied by masters' students, all on vacation for the summer, served as Douglas's office. The rest of the group worked in another computer lab one floor above. The computer, keyboard, and all of the software packages were in German, putting Douglas's linguistic abilities to the test. A large bank of windows looked out over the city, providing ventilation on hot days and lots of sunshine.

The PhD candidates were a lively group of young men, all eager to graduate but sidetracked from their research, instead working on the humanoid robotics project. Christian loved to mountain bike and had studied in America for a year. Franz wore his hair long, bleached blonde by the sun. Every weekend he would head to the beach to surf. George was from Thailand, having come to complete his studies in Germany. While everyone else in the group spoke a good deal of English, Douglas and George only could communicate using German. On most days, the entire group would go to lunch together at the university

cafeteria or one of the restaurants just off campus. There was a strong sense of camaraderie in the group and Douglas felt he was accepted as an equal, simply being another member of the team.

Projects, Tasks, and Responsibilities

The human shoulder has at least six degrees of freedom. The institute's then-current robot prototype's shoulder only had three. Douglas was tasked with creating concepts to give the robotic shoulder at least six degrees of freedom while still maintaining a high degree of positioning accuracy at its fingertips. Any increase in positioning error in the shoulder would magnify many times over at the fingers. The task was further constrained by the requirement that the body of the robot was reserved for electronics, not mechanical components. Douglas was given two months to come up with a series of concepts, hold a concept review, and then develop the best into a working computer-modeled prototype.

Success and Failure on the Job

The group loved Douglas's work. They had expected that Douglas would not produce nearly the detailed level of design that he did. His design provided six degrees of freedom while only using three actuators per shoulder. While some space was consumed that had been set aside for electronics, the group felt that it was an acceptable tradeoff for the benefits of the new design. The group planned to implement Douglas's design within the next year.

Now nearly two years after Douglas's internship, the design remains to be implemented. The optimistic schedule set by the institute has slipped somewhat. They still plan to use Douglas's design but will wait until the end of the year to debut the finished, integrated design to the world.

Memories, Memories

Douglas's favorite memory of Germany comes from a two-day music festival. Das Fest is a huge open-air extravaganza held in Karlsruhe every July in one of the larger parks. A hill climbs up behind the stage, completely full of people. More than 20,000 attended, packed shoulder to shoulder. Douglas met one of his family's old exchange students at the festival. She had brought her friends, all law students, to the event. They watched many great and not-so-great bands, their ears ringing from the din of thousands of fans and the blaring music.

Returning Home – Lessons Learned, Seeds Planted

Douglas feels that he learned many valuable skills and lessons while in Tunisia and Germany. Not only did he learn how to dodge a knife but he also learned how to organize a major academic conference and the functioning of a marble tile factory. His time in Tunisia allowed him to see the world through different eyes. Rather than an America and Europe-centric view of the world, his horizons have been expanded to include the Middle East and North Africa, too. It's true that he didn't expand his engineering skillset in a meaningful way but he did realize many important things about working overseas.

At MTC he realized the reason behind so many expatriate jobs in the third world. Often, no one has the skills locally to maintain complex equipment. Another problem comes from the lack of a critical mass to sustain maintenance and repair services in-country. Both of these points were driven home to Douglas when the factory had to call in an Italian engineer to both hand-carry the necessary parts and make the repairs.

One thing that Douglas had learned in school but that he had never really thought about was the relative cost of money. To be able to hire ten workers rather than automate a machine drove that lesson home. It was shocking for him to discover that a good, middle-income job in Tunisia paid so little in terms of American dollars but bought so much domestically. He was in even greater shock when he found out how much relatively inexpensive technology in America cost when imported to Tunisia.

CEMAT taught Douglas the true value of access to information. Having come of age at the dawn of the internet era, Douglas never faced a lack of access to knowledge and information before going to Tunisia. The battle he fought to bring high-speed internet to the research center showed him just how hard it can be for much of the world to access knowledge and information thought of as readily available in America but that is very inaccessible without access to the internet.

Having learned Pro-E several years before his German internship, Douglas was introduced to Pro-E Wildfire. He took the new software as an opportunity and challenge, learning how to use the new version. The task was complicated by the software only being in German.

Douglas took this in stride, too, figuring out the words and translating them into English, creating a cheat-sheet that he always kept by his workstation.

Language learning did not stop at the computer. George helped to push Douglas to improve his German so that they could communicate more effectively. While Douglas already spoke passable conversational German, his technical German was nonexistent when he first arrived. After a summer spent working as an engineer in Germany, Douglas was able to successfully navigate technical conversations and contribute productively to discussions.

More than anything, Douglas feels he learned more about the culture of Germany. While he had studied in Germany during high school, living with a family and attending a Gymnasium, the experience of living on his own and working at the institute provided him a unique insight. He learned first-hand how engineers and lawyers work and play. Douglas's many trips through Germany and into neighboring countries gave him the opportunity to observe the different subcultures. Rather than seeing Germany as a homogeneous block, he witnessed the nuances of German life.

Now back in America, Douglas seems to do nothing but try to find ways to leave the country, wishing to go abroad once more. He actively seeks out and applies to every opportunity which might let him work or study in a foreign land. Rather than be stuck with a domestic engineering job, he decided to attend a masters program with the intent to hone and target his skills specifically for working overseas. Douglas does not have one specific country or region on which he wants to focus. While Douglas does have strong interest in the Middle

East and North Africa, his heart lies with exploring new places and new cultures rather than a specific place on the map, he is targeting the region as a starting point for a broader international career. There is no doubt that you will see Douglas working oversees in the very near future!

Does Douglas feel he benefited from his Tunisian and German internships? Absolutely. Would he do it all over again? Absolutely. Did he make some mistakes? Yes, but he learned valuable lessons from them and wishes, through his story, to help future international engineering interns avoid the same mistakes. If Douglas's experiences focused and shaped his future, just think of what an international engineering internship can do for you!

Interview #3 – "John"

Name: "John" [13]
Hometown: Unknown
Major: Electrical Engineering
Year in School: Unknown

An engineering student who shall be called John did not have a positive experience. He found himself in Germany, having applied to and been accepted by the DAAD-RISE program. Arriving at the jobsite, he found the company completely unprepared. The internship program had not communicated with the host company. The host company had no idea he was coming until he showed up on their doorstep. John stayed for only a week instead of the planned three months, hoping that the company would accommodate him and he would be able to complete the internship. He returned home, disappointed and

discouraged, spending the summer working on a farm in Oregon rather than interning in Germany.

Finding, Appling for, and Being Accepted to the Internship

It is not known how John first found out about the DAAD-RISE program. Perhaps it was through a College of Engineering email, an International Programs Office webpage, an academic advisor, or a friend. Whatever the method, John applied to the internship, submitting his curriculum vitae, a cover letter, academic transcripts, and a letter of recommendation and reference from his university. An unknown amount of time passed before he received an email and telephone call congratulating him on his acceptance to the program. A large packet came in the mail, containing details of the internship.

Preparations and Expectations

It is not known how John prepared for his internship. It is known that he did not contact the host university or connect with his future boss. Had he contacted his future boss, perhaps the miscommunication between the DAAD-RISE program and the host institution would have been caught prior to John's arrival in the country.

Arriving and Settling In

John arrived at the internship site to find the host organization not expecting him. No one from the DAAD-RISE office had contacted the host organization to confirm that John would be coming. John waited a week for the problem to be resolved before he decided to return to America rather than wait all summer for a project or task to complete.

Compensation and Workday

John never had a full workday although it is expected he would have worked 40 hours per week. Had he stayed for the duration of the program, John would have received a stipend of 650 euros per month which would have been deposited into hi German bank account.

Workplace and Coworkers

No information is available regarding John's workplace or coworkers.

Projects, Tasks, and Responsibilities

No task, project, or responsibility was ever assigned to John before he returned to America.

Successes and Failures on the Job

John never was allowed to complete any work and returned home only one week into his internship. The internship did successfully teach John the importance of communication. Beyond that, the internship can be viewed as a failure from most angles.

Memories, Memories

John did not have any favorite or funny memories to share from his internship. He was bitter over the result of his internship and held no memories of the experience in a good light.

Returning Home – Lessons Learned, Seeds Planted

John's experience serves as an important lesson for what can go wrong with an international internship. Communication is critical. John believes that, had he been in contact with the company before he left, the internship would have gone as originally planned and he would

not have been forced to return to America. While it is true that effective communication does vary greatly between cultures and that "yes" in one culture might really mean "no" in another, it is wise to ensure that an internship is secure rather than assuming everything will go as planned. A little bit of forethought and preplanning can save many sleepless nights and big headaches down the road.

Profiles

Three profiles gleaned from the interview summaries presented above are presented below. . While many believe that, in general, profiles written in the 1st person are more effective than 3rd person, the author presents these profiles in the 3rd person because it was impractical to ask the interviewees to write their own profiles. Additionally, it is not entirely clear if 1st person profiles would be viewed more favorably by engineering undergraduates than 3rd person profiles. Determining the appropriate voice to use in profiles targeting an engineering audience is beyond the scope of this thesis.

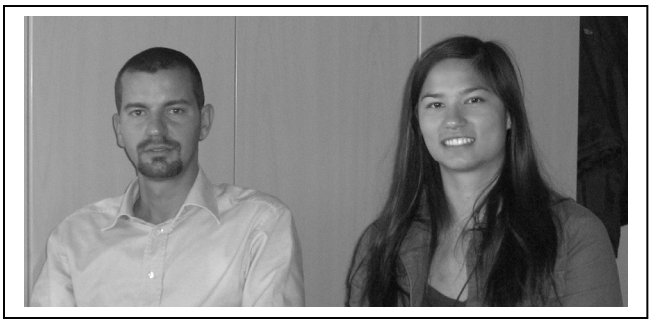
Curriculum vitas [15,16] (Appendix C) have been provided with the intent that they be presented along with the profiles on a website. Curriculum vitas are important to present to future students as a guide. American resumes can be very different when compared with curriculum vitas tailored for different cultures. Without a resource, such as these curriculum vitas, the chances of a hopeful international engineering intern are greatly decreased.

Photos are included to help further humanize the profiles and to give a glimpse into the world of international engineering. While words can tell a story, photos immediately convey far more meaning than mere sentences ever could.

Jaime Junell

Major: Mechanical Engineering
Internship Location: Rome and Pisa, Italy
Duration: Three months

A lack of language skills did not stop Jaime from interning in a non-English environment. After spending a summer in Italy with VIRGO, the European gravitational wave observatory, Jaime returned to OSU with newfound confidence and self-reliance built from her experiences in Rome and Pisa.



JAIME AND FREDERIC IN PISA

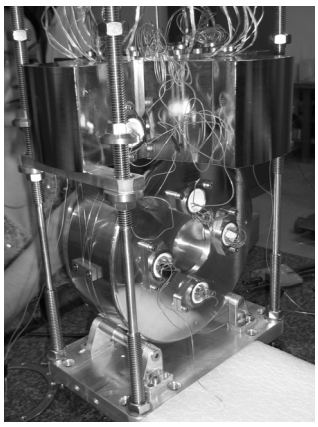
Jaime split her internship working in a research lab at University of Rome and a research facility in Pisa, Italy. While working in Pisa, Jaime learned ANSYS and used the software package to analyze several new and novel design concepts to be used in cryogenic chambers. She also helped maintain the vacuum pump system at the facility in Pisa.

THE LAB IN ROME

Italy's victory over arch-rival France in the 2006 World Cup soccer finals is Jaime's favorite memory of Italy. She watched the game in an open park flooded 300,000 Italian soccer fans. When Italy won, the streets of Rome flooded with fans, cheering and singing.

While Jaime did find parts of her experience frustrating, she feels she acquired valuable skills both in engineering and life. She learned the basics of ANSYS, and improved her Italian from fumbling through a pocket phrase book to being able to navigate the country. Successfully navigating the Italian train system was a personal accomplishment for Jaime who did not have a very good sense of direction prior to her time in Italy.

By far the biggest change in Jaime, brought about by her overseas internship, is her newfound sense of independence. Going to Italy was the first time in Jaime's life that she had been away from her family and friends and without a safety net. She now feels confident that she can handle any situation anywhere in the world.



MIRROR TESTING MODEL IN ITALY

Thanks to her international engineering internship, Jaime finds herself longing to return to work overseas. The European Union and Singapore especially interest Jaime because of their high standard of living and strong economies. Opportunities abound for American engineers with a desire to work overseas and the drive to do it. There is no doubt that one day very soon you will find Jaime at one of the major design houses of Europe or Asia.

Does Jaime feel she benefited from her Italian internship? Absolutely. Would she do it all over again? Absolutely. If Jaime turned into the confident, outgoing, fun person she is today, just think of what an international engineering internship can do for you!

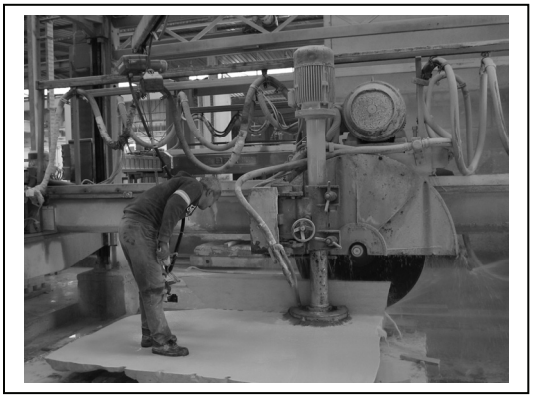
DOUGLAS AND ONE OF HIS COWORKERS

Douglas Van Bossuyt #1

Majors: Mechanical Engineering, International Studies
Internship Location: Tunis, Tunisia
Duration: Six Months

From an early age, Douglas looked overseas. Ever since his family hosted a German exchange student when he was in 2nd grade he knew he wanted to go abroad. In college, Douglas took two years of Arabic before going to Tunisia to continue his studies. After the academic program ended, Douglas stayed on for six additional months in Tunisia, interning at a marble factory and at an academic research center.

At the marble factory, Douglas analyzed several large marble cutting and milling machines for potential equipment upgrades. It turned out that it would be cheaper to hire more workers than it would be to upgrade the machines. Douglas's experience at the factory taught him that a project that might be justifiable in one country is not in another.



A MARBLE CUTTING MACHINE

When Douglas arrived at the research center, he found the telecommunications system in disarray. Over the course of six months, Douglas networked the computers and installed high-speed internet to the building. While the task might seem easy in America, Douglas found it very challenging to even find cable to connect the computers together. Through his work, Douglas learned the true value of information. Additionally, Douglas helped coordinate several large academic conferences.

Scary memories can also be the most cherished memories. This is the case for Douglas. His favorite memory of Tunisia comes from when someone tried to mug him. His language abilities and quick thinking scared the thief off and saved the day. In Tunisia Douglas found exactly what he was looking for – excitement and thrills.

Douglas feels that he learned many valuable skills and lessons interning in Tunisia. Not only did he learn how to dodge a knife but he also learned how to organize a major academic conference and the functioning of a marble tile factory. His time in Tunisia allowed him to see the world through different eyes. Rather than an America and Europe-centric view of the world, his horizons have been

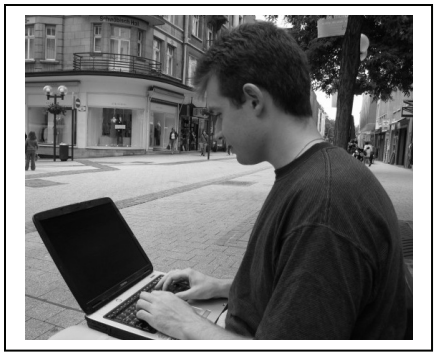
ON ASSIGNMENT IN THE SAHARA

LOST IN A SANDSTORM

expanded to include the Middle East and North Africa, too.

Now back in America, Douglas seems to do nothing but try to find ways to leave the country, wishing to go abroad once more. There is no doubt that you will see Douglas working oversees in the very near future!

Does Douglas feel he benefited from his Tunisian internship? Absolutely. Would he do it all over again? Absolutely. If Douglas's experiences focused and shaped his future, just think of what an international engineering internship can do for you!



DOUGLAS OUT ON THE STREET IN LUXEMBOURG

Douglas Van Bossuyt #2

Majors: Mechanical Engineering, International Studies
Internship Location: Karlsruhe, Germany
Duration: Three Months

From an early age, Douglas looked overseas. Ever since his family hosted a German exchange student when he was in 2nd grade he knew he wanted to go abroad. It was his early exposure to German culture that propelled Douglas to intern for three months at the University of Karlsruhe in Germany.

In Karlsruhe Douglas designed components for humanoid robots. His largest project was designing a robotic shoulder that had six degrees of freedom while still maintaining a high degree of positioning accuracy at the robot's fingertips. The resulting design was novel and innovative. Soon, Douglas's work will appear on robots made in Germany.

Aside from the technical challenge, Douglas also found it difficult and exciting to learn how to use the German edition of Pro-E Wildfire. While he was familiar with the software from previous work, it was a whole new experience to use it in German.

DAS FEST

Douglas's favorite memory of Germany comes from a two-day music festival, Das Fest, held in Karlsruhe. Over 20,000 screaming fans filled a park in town with Douglas at the very center. The town danced to heavy metal bands for an entire weekend.

More than anything, Douglas feels he learned much about the culture of Germany. The experience of living on his own and working at the university provided him a unique insight. Rather than seeing Germany as a homogeneous block, he witnessed the nuances of German life and learned how German engineers think.

Now back in America, Douglas seems to do nothing but try to find ways to leave the country, wishing to go abroad once more. There is no doubt that you will see Douglas working oversees in the very near future!

Does Douglas feel he benefited from his German internship? Absolutely. Would he do it all over again? Absolutely. If Douglas's experiences focused and shaped his future, just think of what an international engineering internship can do for you!

Comparison between Internships

As can be seen with Jaime's and Douglas's experiences, there can be many differences and similarities between internships in different cultures and at different organizations. While Douglas found that interns were not expected to be at work every day for the whole day, Jaime worked 40 hours a week on a fixed schedule. Douglas believes that this is a cultural phenomenon in Tunisia while in Germany it was an artifact of the organization. As each culture and organization is different, a future intern should contact the sponsoring company directly to learn about the cultural and organizational expectations.

Compensation also varied across the internships. Jaime received the same salary she would have had she worked in the states as well as an airline ticket to Italy. Douglas did not receive any compensation at the marble factory and only received minimal compensation at the research center after negotiating once he arrived. In Germany, Douglas was given a small stipend that was enough to live on but not comparable to American salaries for the same position. However, his stipend was more generous than what most German interns received. Most overseas internships, if not arranged through an American-based company, should not be expected to pay a stipend or salary.

Workplaces and working conditions varied greatly. This was partially as a result of differing laws governing working environments between the different countries and also partially a result of the different organizational structures, cultures, and circumstances. Future interns wondering what their workplaces will be like can discern some information from applicable

local laws but should contact the host company directly for specific information on their assignment.

Intern work assignments vary greatly across different organizations and cultures. While Jaime spent the first half of her summer in Italy helping out in a lab and the second half running simulations in ANSYS, Douglas found himself installing networks and doing feasibility studies in Tunisia, and designing humanoid robotic shoulders in Germany. A wide range of potential assignments and tasks is available in the world. When applying, prospective interns should ensure that the internship tasks and responsibilities match their interests. Both past interns found that their host organizations were willing to work with them to find tasks which they were interested in completing and that would benefit the company.

When reviewing Jaime's and Douglas's discovery of their respective internships, it seems at first glance as if luck played a large role. In some cases it does but others it does not. In all cases, hard work and due diligence turned the opportunities into successes. It might be true that Jaime was lucky to have turned down the LIGO internship only to be offered the VIRGO internship, being simply a lucky chance that the people at LIGO knew of her qualifications and her availability but this is not the full picture. Jaime's work with an OSU campus lab gave her the experience and the references she needed to be considered for the internship in the first place. It was happy coincidence that LIGO recommended her to VIRGO but without the groundwork at OSU, that never would have happened.

The securing of Douglas's internships in Tunisia show the importance of connections in the context of the culture. He was able to intern at the marble factory only because Karim knew the director. Likewise, he worked for the research center only because Karim had introduced him to the director and had highly recommended him. Had Karim not worked with Douglas, the opportunities would not have even been present. The internships were created because Karim asked; they did not exist and were not offered before his inquiries. Clearly, in Douglas's Tunisian case, connections were everything.

The German internship was acquired through more conventional means. Douglas found out about the opportunity through the International Programs Office at Oregon State University. While he did receive assistance from the office to create a culturally appropriate curriculum vitae and cover letter, he was able to apply on his own.

Conclusions and Recommendations for Future International Engineering Interns

From Douglas's, Jaime's, and John's experiences one can draw several very important lessons that all future international engineering interns should learn. They are reviewed below in decreasing degrees of importance. While a prospective intern can have a wonderful experience, the chances of a successful internship can be greatly increased if the intern follows these reccomendations.

Communication is Key

As is exemplified by John's experience, communication is absolutely critical. Had he contacted his host institution, the clerical error would have been discovered and fixed.

However, because he didn't talk with his future boss before he left, he found that they didn't even know he was coming. Likewise, Jaime would have benefited from communicating with her boss prior to her arrival. There had been miscommunication with LIGO and VIRGO resulting in VIRGO not having any tasks ready for Jaime to complete. Douglas clearly benefited from communicating with his boss in Germany. He was prepared to go to work as soon as he arrived. Additionally, his housing was prearranged and secure, taking the stress off of moving to Germany. Jaime, too, benefited from communication with the VIRGO staff as her housing had also been prearranged.

It can not be stressed enough how important communicating with your boss and host institution before you leave can be to your success. If you don't talk to them before you arrive, you might find that they haven't identified any tasks for you to perform or, even worse, that you don't have an internship. Effective and early communication will greatly increase your odds of having an amazing internship experience overseas.

Setting Appropriate Expectations

Aside from the communication troubles which plagued John, it appears he had too high an expectation for his internship, expecting it to unfold like an American cooperative internship program. Douglas also felt he went into his Tunisian internships with inappropriate expectations. He believed that he would make meaningful contributions at the marble factory but felt that his time there did not add all that much to the operation. Likewise, Jaime also felt that she was not particularly useful and believed that she would have a more structured internship and be able to make a bigger difference. Interns should not go into an internship expecting to change the world. A successful internship overseas is defined not by

projects accomplished and tasks completed but by cultural experiences, friendships, a newfound sense of independence, and broadened horizons. Expect success to come from the most unlikely of places.

Survival Language

Jaime strongly urges any future intern to learn at least a little of the host language before one goes to a foreign country. While she made it through just fine, learning as she went, she feels she would have benefited greatly from having taken a conversational course in Italian first. Douglas, too, urges anyone thinking of working abroad to learn a little bit of the language. He also suggests that future interns buy a technical dictionary to supplement any phrase books or normal dictionaries. He found that his Arabic technical dictionary proved quite useful several times when the words did not appear in his normal dictionary.

Strong Curriculum Vitas and Letters of Recommendation

Both Douglas and Jaime had strong and culturally appropriate curriculum vitas and letters of recommendation which helped to secure their internships. It is very important for a prospective intern to have a curriculum vitae which is culturally appropriate and stands out from the crowd. As there aren't many international engineering internships offered yet, competition can be fierce. Outstanding references are also critical, especially in cultures which value personal opinions of applicants more than a simple resume. Both Douglas and Jaime had strong curriculum vitas and references from their previous internships. Their curriculum vitas have been included in Appendix C. Any prospective overseas intern should have at least some engineering work experience, be it on campus or in industry, prior applying for international internships.

Suggestions for International Engineering Internship Student Profile Websites

Several additional suggestions not already presented in the main body of the thesis are presented below for the purveyors of international engineering internship student profile websites.

While it is easy to post one to two page profiles of past international engineering internship participants, engineers are liable to be left wanting more information. The author suggests that longer versions of profiles, akin to the interview summaries presented in this document, either be provided on the website via a link or made accessible in hard copy. The author hypothesizes that having extended information readily available on a website will provide the instantaneous information many engineers expect and demand. The author suspects that making the extended information available only in hard copy form will force more engineering students to visit the International Programs Office. This would provide the potential for greater face-to-face contact with program staff than simply posting all of the information on the internet.

As many engineers can attest, American resumes are vastly different than curriculum vitas. The author hypothesizes that perspective interns would find it very useful and potentially provide additional motivation if curriculum vitas of profiled students are made available, either online or in hard copy. Not only will perspective students be afforded the opportunity to see successful curriculum vitas, they will also see that they, too can intern abroad with their levels of experience.

Providing contact information, such as an email address, of the profiled students can be very useful. As can be seen on several websites, including the UHC and the International Programs Office websites, contact information is provided. Having this information available allows perspective interns to ask questions of past participants that they otherwise might not feel comfortable asking. Also, the author suspects that engineering students are more likely to trust information coming directly from other students than through an intermediary program office.

Appendix A: IRB Forms and Paperwork

IRB Approval

TO: Joseph Zaworski
Mechanical Engineering

IRB #: 3602 – International Engineering Interns in Their Own Words: Past Interns Share Their Stories and Share Their Wisdom with the Future (Student Researcher: Douglas Van Bossuyt)

Level of Review: Exempt
Expiration Date: 4-20-08
Approved Number of Participants: 10

The referenced project was reviewed under the guidelines of Oregon State University's Institutional Review Board (IRB). The IRB has **approved** the:

(X) Initial Application ( ) Continuing Review ( ) Project Revision
with a (if applicable): ( ) Waiver of documentation of Informed Consent ( ) Waiver of Consent

A copy of this information will be provided to the full IRB committee.

- **CONSENT FORM:** All participants must receive the IRB-stamped informed consent document. If the consent is in a format that could not have stamp placement (i.e. web site language, email language, etc), then the language must be **exactly** as the IRB approved it.
- **PROJECT REVISION REQUEST:** Any changes to the approved protocol (e.g. protocol, informed consent form(s), testing instrument(s), research staff, recruitment material, or increase in the number of participants) must be submitted for approval before implementation.
- **ADVERSE EVENTS:** Must be reported within three days of occurrence. This includes any outcome that is not expected, routine and that result in bodily injury and/or psychological, emotional, or physical harm or stress.
- **CONTINUING REVIEW:** A courtesy notice will be sent to remind researchers to complete the continuing review form to renew this project, however – it is the researcher's responsibility to ensure that continuing review occurs prior to the expiration date. Material must be submitted with adequate time for the office to process paperwork. If there is a lapse in approval, suspension of all activity including data analysis, will occur.
- **DEVIATION/EXCEPTIONS:** Any departure from the approved protocol must be reported within 10 business days of occurrence or when discovered.

Forms are available at: http://oregonstate.edu/research/osprc/rc/humansubjects.htm.

If you have any questions, please contact the IRB Human Protections Administrator at IRB@oregonstate.edu or by phone at (541) 737-8008.

Elisa Espinoza Fallows

Date: 4-21-07

Elisa Espinoza Fallows
IRB Human Protections Administrator

Initial IRB Application

Oregon State UNIVERSITY OSU Institutional Review Board
Office of Sponsored Programs and Research Compliance

Initial Application

Please read through the entire application before beginning. *Requested information must be typed and submitted to the Human Protections Administrator, Office of Sponsored Programs and Research Compliance, 312 Kerr Administration Bldg.* ***Be sure to allow adequate time for review and comments. Incomplete requests will delay the review process.*** *Applications will be returned without review if the application involves technical language without common explanations or if the application is poorly constructed grammatically. Send an email to IRB@oregonstate.edu or call (541) 737-8008 with any questions.*

Project Title: International Engineering Interns in Their Own Words: Past Interns Share Their Stories and Share Their Wisdom with the Future.		**IRB Application #:** Assigned by IRB Office
Principal Investigator: Dr. Joseph Zaworski	**Department:** Mechanical Engineering	
PI Email: jzr@engr.orst.edu		**PI Telephone:** 541-737-9695
Student Researcher: Douglas Van Bossuyt	**Class or Degree Program (if requirement for student):** International Degree Program	
Primary Contact Person: Dr. Joseph Zaworski	**Email:** jzr@engr.orst.edu	**Telephone:** 541-737-9695
Campus or US Mail Address (to send correspondence): 204 Rogers Hall		**Date:** April 5, 2007

1. **Level of Review Requested:**

   ☒ Exempt from Full Board — Allow a ***minimum of two weeks for the initial review*** and additional time for modifications, if required for approval.

   ☐ Expedited — Allow a ***minimum of one month for the initial review*** and additional time for modifications, if required for approval.

   ☐ Full Board — A schedule of upcoming Full Board meetings and submission deadlines can be found at: http://oregonstate.edu/research/osprc/rc/humansubjects.htm

2. **Method of Submission:**

   ☒ Via campus/US mail — Hard copy of application and appropriate materials (e.g., recruitment materials, informed consent document) sent in mail. ***For Exempt from Full Board applications submit 1 copy, for Expedited and Full Board applications submit 3 copies.***

   ☐ Via email — Submit application and appropriate materials as email attachments. ***The signature page (page 4) must be mailed or faxed to complete the application.***

3. **External Funding** (present or proposed):

   ☐ **Yes** Contract or grant title: _____
   Funding source: _____
   If funded by NIH, DHHS, PHS (including subcontracts), submit a copy of the grant.

   ☒ **No**

4. **Certification of Education:**

All research staff involved in this project must receive training in the ethical use of human participants in research. To document this training, the **Certification of Education form** must be submitted (available at: http://oregonstate.edu/research/osprc/rc/humansubjects.htm) . The Certification of Education form is **NOT** the confirmation issued by the educational tutorial. The Certification of Education form needs to be submitted only once for each researcher. ***Submission of all necessary certificates is a prerequisite to review.**

Research Staff Name	Role in Project	Certification of Education Submitted
Dr. Joseph Zaworski	Principal Investigator	☒ Yes ☐ No*
Douglas Van Bossuyt	Student Researcher	☒ Yes ☐ No*
		☐ Yes ☐ No*
		☐ Yes ☐ No*
		☐ Yes ☐ No*
		☐ Yes ☐ No*
		☐ Yes ☐ No*
		☐ Yes ☐ No*
		☐ Yes ☐ No*

Attach additional sheet if necessary.

5. **Project Start Date** (i.e., recruitment of human participants): April 23, 2007

6. **Expected Duration of the Study:** One Month

7. **Does this study only involve de-identified data or samples?***

☐ **Yes** If "yes", then skip to Question 10.

☒ **No**

*Research involving the collection or study of existing data, documents, records, tissue culture cells, or pathological/diagnostic specimens, if these sources are publicly available or if the information is recorded by investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to subjects.

8. **Risk/Benefit Assessment:**

☒ Minimal risk

☐ Greater than minimal risk, but holds prospect of direct benefit to subjects

☐ Greater than minimal risk, no prospect of direct benefit to subjects but likely to yield generalizable knowledge about the subject's disorder or condition

☐ Research not otherwise approvable but presents an opportunity to understand, prevent, or alleviate a serious problem affecting the health or welfare of the subjects.

9. Subject Population:

Number of subjects that will be enrolled over the life of the study: 10
In order to enroll more than the number specified, a Project Revision request must be approved.

Participant age range (check all that apply):
Populations designated with an asterisk (*) are vulnerable populations and ineligible for exempt review.

- ☐ *0-7: Youth (include parental consent form)
- ☒ 18-65
- ☐ *8-17: Youth (include assent and parental consent)
- ☐ 65 and older

Populations targeted in this research (check all that apply):
Populations designated with an asterisk (*) are vulnerable populations and ineligible for exempt review.

- ☐ *Persons with mental/emotional/developmental disabilities
- ☐ *Pregnant women/fetuses/IVF
- ☐ Gender imbalances – all or more of one gender
- ☐ *Prisoners
- ☐ *Minority group(s) and non-English speakers
- ☐ Elderly subjects

10. If the research involves any of the following, check the appropriate box:

- ☐ Audio or videotaping
  Ineligible for Exempt review
- ☒ Survey/questionnaire
- ☐ Deception
  Requires review at Full Board level
- ☐ Behavioral observation
- ☐ Radiation
  Complete and submit Attachment A
- ☐ Study of existing data
- ☐ Human materials (i.e., blood or other bodily secretions)
  Complete and submit Attachment B
- ☐ Microorganisms or recombinant DNA
- ☐ Waiver of documentation (signature) of informed consent
  Include justification in the protocol
- ☐ Waiver of informed consent
  Include justification in the protocol
- ☐ Consent material in another language
  Include consent material in other language and an English translation; provide details regarding qualifications of translator and of research staff obtaining consent in other language
- ☐ Other research site (i.e. school, tribal reservation, etc)
  Provide documentation of the approval of the relevant IRB, school principal, tribal office, etc.
  Name of other research site(s): _____
- ☐ International research site
  Provide documentation of the approval of the relevant IRB, community leader, FWA, etc.
  Name of international research site(s): _____
- ☐ Submitted to another institution's IRB for review
  Name of institution: _____

11. Attachments (check all that apply):

- ☒ Protocol ***(required)***
- ☒ Consent Document
- ☐ Assent Document
- ☐ Attachment A: Radiation
- ☐ Attachment B: Human Materials
- ☐ Grant (required for NIH, DHHS, PHS funded projects)
- ☒ Recruiting tools (scripts for recruitment/screening)
- ☒ Test instruments (e.g., questionnaires, surveys)
- ☐ Material in other languages
- ☐ Additional information (e.g., debriefing materials)
- ☐ Approvals from other research sites (other IRB, school principal, tribal office, etc)

12. Will the study need to be registered with ClinicalTrials.gov?

☐ **Yes** For more information: http://www.oregonstate.edu/research/osprc/rc/humansubjects.htm

☒ **No**

13. Conflict of Interest:

Federal Guidelines require assurances that there are no conflicts of interest in research projects that could affect the welfare of human subjects. If this study presents a potential conflict of interest, additional information will need to be provided to the IRB. Examples of potential conflicts of interest may include, but are not limited to:

- A researcher or family member participating in research on a technology, process or product owned by a business in which the faculty member holds a financial interest
- A researcher participating in research on a technology, process or product developed by that researcher
- A researcher or family member assuming an executive position in a business engaged in commercial or research activities related to the researchers University responsibilities
- A researcher or family member serving on the Board of Directors of a business from which that member receives University-supervised Sponsored Research Support

For more information: http://oregonstate.edu/research/osprc/rc/conflictofinterest.htm

Conflict of Interest Statement:

Could the results of the study provide a potential financial gain to you, a member of your family, or any of the co-investigators that may give the appearance of a potential conflict of interest?

☐ **Yes** Please describe any potential conflicts of interest in a cover letter and disclose in the informed consent document.

Has this potential conflict been disclosed and managed? ☐ **Yes*** ☐ **No**

☒ **No**

IRB will confirm with Conflict of Interest Officer that potential conflicts of interest have been managed. Final IRB approval cannot be granted until all potential conflict matters are settled. The full IRB committee grants final approval regarding the disclosure of conflict statement in the consent form.

By signing below, I certify that the above information is accurate and complete. I understand that research involving human participants, **including recruitment**, may not begin until full approval has been granted by the IRB.

Signature_____ Date_____

*Principal Investigator (required)**

***If submitting Initial Application via email, mail or fax this page with the PI's signature to the Human Protections Administrator.**

Initial IRB Report

EXEMPT REPORT OF REVIEW

April 13, 2007

TO: Joseph Zaworski
Mechanical Engineering

FROM: Elisa Espinoza Fallows, Human Protections Administrator
Office of Sponsored Programs and Research Compliance

RE: International Engineering Interns in Their Own Words: Past Interns Share Their Stories and Share Their Wisdom with the Future (Student Researcher: Douglas Van Bossuyt)

IRB Application No. 3602

The referenced project was reviewed under the guidelines of Oregon State University's Institutional Review Board (IRB). The status of your application is **approved pending modifications**. Please address the following concerns and/or questions:

Survey:

1. The demographic questions are not related to the research (investigate and compare internships); what is the relevance of the questions? Either justify in protocol or remove from the survey.

The principal investigator should re-submit any necessary portions of the application requiring revision within two months of the date of this letter. **Work with human participants (including recruitment) may not begin until full approval has been issued.** If you have any questions, please contact me at IRB@oregonstate.edu or by telephone at (541) 737-8008.

Informed Consent Document

Project Title: International Engineering Interns in Their Own Words: Past Interns Share Their Stories and Share Their Wisdom with the Future.
Principal Investigator: Dr. Joseph R. Zaworski, Mechanical Engineering
Co-Investigator: Douglas Van Bossuyt, Mechanical Engineering, International Studies, University Honors College

WHAT IS THE PURPOSE OF THIS STUDY?

You are being invited to take part in a research study designed to investigate and compare international engineering internships with domestic engineering internships, and pose recommendations for future Oregon State University engineering students interested in international engineering internships. The researchers hypothesize that international engineering internships differ in several key aspects from their domestic counterparts including compensation, company expectations of the intern, working conditions, task assignments, benefit to the company, benefit to the intern, and learning achieved by the intern on the internship.

Information on the previously mentioned topics and general information on international engineering internships is being sought. The results of this study will be published in a student thesis, presented at a poster fair, and potentially published on several Oregon State University department and college websites. Additionally, results from this study may be published outside the university.

We are studying this because no good resources currently exist at Oregon State University to aid engineering students in the international internship process. This study will help to fill in the knowledge gap and, it is hoped, will make it easier for future students to intern abroad and make future students' experiences more valuable and productive.

WHAT IS THE PURPOSE OF THIS FORM?

This consent form gives you the information you will need to help you decide whether to be in the study or not. Please read the form carefully. You may ask any questions about the research, the possible risks and benefits, your rights as a volunteer, and anything else that is not clear. When all of your questions have been answered, you can decide if you want to be in this study or not.

WHY AM I BEING INVITED TO TAKE PART IN THIS STUDY?

You are being invited to take part in this study because you have completed engineering internships outside of the United States of America and are a current student or recent graduate of an Oregon State University engineering program.

WHAT WILL HAPPEN DURING THIS STUDY AND HOW LONG WILL IT TAKE?

You will be interviewed by the researchers about your international internship experience and any domestic internship in which you have taken part. The length of time required to complete this study will depend upon how much detail you want to relate but is not intended to take more than one hour to

complete the international portion of the interview and, optionally, an additional 30 minutes to complete a review of any domestic internships in which you've participated.

WHAT ARE THE RISKS OF THIS STUDY?

There are no known risks to this study.

WHAT ARE THE BENEFITS OF THIS STUDY?

We do not know if you will benefit from being in this study. However, we hope that, in the future, other people might benefit from this study because the information you provide is expected to help guide future engineering students in their pursuit of international engineering internships.

WILL I BE PAID FOR PARTICIPATING?

You will not be paid for being in this research study.

WHO WILL SEE THE INFORMATION I GIVE?

The raw information that you provide during this research study will be kept confidential to the extent permitted by law. To help protect your confidentiality, we will store all documents related to your interview in a secure, locked location.

The very nature of this study requires the researchers to release details about the information you provide including your name, photographs which you might provide the researchers, details about your former employment, future plans, and any other information which you share with the researchers. You will be given the opportunity to review the undergraduate student thesis before it is defended to check for accuracy and to verify that you are portrayed in a manner which you feel appropriate. You have the final veto power over all information about you that is included in all published works drawing upon the information gleaned from your interview.

DO I HAVE A CHOICE TO BE IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering.

You will not be treated differently if you decide to stop taking part in the study. You are free to skip any questions at any point during the study if you prefer not to answer. If you choose to withdraw from this project before it ends, the researchers may keep information collected about you and this information may be included in study reports.

WHAT IF I HAVE QUESTIONS?

If you have any questions about this research project, please contact:
Principle Investigator: Dr. Zoseph Zaworski, 547-737-9695, jzr@engr.orst.edu
Co-Investigator: Douglas Van Bossuyt, 503-349-1772, Douglas.VanBossuyt@gmail.com

If you have questions about your rights as a participant, please contact the Oregon State University Institutional Review Board (IRB) Human Protections Administrator, at (541) 737-4933 or by email at IRB@oregonstate.edu.

Your signature indicates that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study. You will receive a copy of this form.

Participant's Name (printed): _____

_____ _____

(Signature of Participant) (Date)

Protocol Document

Project Title:	International Engineering Interns in Their Own Words: Past Interns Share Their Stories and Share Their Wisdom with the Future.
Principal Investigator:	Dr. Joseph R. Zaworski, Mechanical Engineering
Co-Investigator:	Douglas Van Bossuyt, Mechanical Engineering, International Studies, University Honors College

Brief Description: This research study is designed to investigate and compare international engineering internships with domestic engineering internships, and pose recommendations for future Oregon State University engineering students interested in international engineering internships. The researchers hypothesize that international engineering internships differ in several key aspects from their domestic counterparts including compensation, company expectations of intern, working conditions, task assignments, benefit to the company, benefit to the intern, and learning achieved by the intern on the internship. Information on the previously mentioned topics and general information on international engineering internships is being sought. The results of this study will be published in a student thesis, presented at a poster fair, and potentially on several Oregon State University department and college websites. Additionally, results from this study may be published outside the university.

Background and Significance: We are studying this because no good resources currently exist at Oregon State University to aid engineering students in the international internship process. This study will help to fill in the knowledge gap and make it easier for future students to intern abroad and make future students' experiences more valuable and productive.

Methods and Procedures: Potential participants will be identified by working with the Oregon State International Studies Office, International Degree Program, College of Engineering, and individual engineering departments. Potential participants will be contacted by phone, email, or in person and asked if they are interested in participating in the research study. The pool of potential participants is expected to be quite small as conventional wisdom holds that few engineers participate in international engineering internships.

Participants will be asked to review the Informed Consent Document with the researchers at a mutually agreed-upon time. After participants review the Informed Consent Document and agree to participate in the research study, participants will be interviewed by the researchers.

Interviews will be conducted individually in an environment in which the participant feels comfortable. Participants should expect to spend one hour being interviewed about international internships with an optional 30 minute extension to cover domestic internships.

Risk/Benefit Assessment:

Risks

There are no known risks.

Benefits

The researchers do not know if participants will benefit from being in this study. However the researchers hope that other people might benefit from this study because the information gathered is expected to help guide future engineering students in their pursuit of international engineering internships.

Conclusion

This is a low-risk study in which participants won't gain any direct benefit other than the satisfaction of knowing that their participation might help future engineering students participate in an international engineering internship.

Participant Population:

No more than ten (10) participants will be recruited over the life of this study. Potential participants will be identified by working with the Oregon State International Studies Office, International Degree Program, College of Engineering, and individual engineering departments. Potential participants will be contacted by phone, email, or in person and asked if they are interested in participating in the research study. The engineering undergraduate population will be screened to find current or recent Oregon State College of Engineering graduates who have participated in international engineering internships. Participant population is **not** restricted to any gender or ethnic group.

Subject Identification and Recruitment:

Due to the nature of the potential participant pool – current students and recent graduates of an Oregon State University College of Engineering program – the participants are expected to not match the population at large in demographics. Potential participants will be identified by working with the Oregon State International Studies Office, International Degree Program, College of Engineering, and individual engineering departments. These offices and departments all keep records of students who recently participated in international engineering internships and are reasonably expected to have no bias in selection of potential participants. The researchers believe that no more and most likely far less than 10 potential participants will be identified in the entire Oregon State Engineering population.

Compensation:

No compensation will be provided.

Informed Consent Process:

Participants will meet face-to-face either individually or as a group with the researchers. The Informed Consent Document will be read to the participants. Two copies of the Informed Consent Document will be provided. One is to be signed by the participants and one is for the participants' records. The researchers will ask for questions at each new heading within the Informed Consent Document and will ask for questions prior to participants signing the document.

Anonymity or Confidentiality:

Documents generated during this study will be kept in a secure, locked location for the duration of the study and for the appropriate time period following the completion of the study. The nature of this study is to publish individual accounts of participant experiences with international engineering internships which means significant directly identifiable information, including names, will be published. Participants will be informed during the course of the Informed Consent Document review and throughout the interview that they may withhold any or all information if they wish and are under no obligation to answer any questions. Participants will be asked to review all material prior to publishing which contains references to them. Participants will have veto power over any material directly related to them. This includes the way in which participants are portrayed within the published material.

Reasons for Demographic Information:
Demographic information including name, major(s), minor(s), language(s) spoken, and hometown will be collected and published. This information is expected to help better connect future students interested in international engineering internships with the experiences of the participants of this study. Future interested students are not expected to contact the participants of this study but are instead expected to humanize participant responses to actual people. In other words, the researchers hope that the intended target audience, future students interested in the topic, will more easily put themselves in the shoes of the study participants and draw parallels more readily between what the study participants did and what the target audience could do in the future by including demographic information.

Examples of demographic information being used for this purpose can be seen at
http://oregonstate.edu/dept/honors/profiles
http://oregonstate.edu/international/profiles
http://oregonstate.edu/admissions/international/profiles/profiles.html
http://ecampus.oregonstate.edu/about/learn-more/students/profiles/default.htm

Recruiting Script

Project Title:	International Engineering Interns in Their Own Words: Past Interns Share Their Stories and Share Their Wisdom with the Future.
Principal Investigator:	Dr. Joseph R. Zaworski, Mechanical Engineering
Co-Investigator:	Douglas Van Bossuyt, Mechanical Engineering, International Studies, University Honors College

After being identified, potential participants will be contacted either in person, over the phone, or via email.

Solicitation of potential participants will follow the below statement:

> Hi. This is _____ from Oregon State University. I'm calling/emailing/talking to you to request an interview about your experiences pertaining to international engineering internships.
>
> You are being invited to take part in a research study designed to investigate and compare international engineering internships with domestic engineering internships, and pose recommendations for future Oregon State University engineering students interested in international engineering internships.
>
> The results of this study will be published in a student thesis, presented at a poster fair, and potentially published on several Oregon State University department and college websites. Additionally, results from this study may be published outside the university. If you choose to participate, your interview, including personally identifying information, will be published. You will have the opportunity to review and edit the portions of the published work which contain your identifiable information.
>
> We are studying undergraduate participation in international engineering internships because no good resources currently exist at Oregon State University to aid engineering students in the international internship process. This study will help to fill in the knowledge gap and, it is hoped, will make it easier for future students to intern abroad and make future students' experiences more valuable and productive.
>
> Are you interested in participating in this study?
>
> I would like to schedule an appointment for your interview at your earliest possible convenience. The interview will be one-on-one with a researcher and will be in any location at or within the vicinity of Oregon State University which you designate. Prior to the start of the interview we will review an Informed Consent Document which will permit us to use your interview in our research. The interview should take approximately one hour to cover your international experiences and can take an additional 30 minutes to review any domestic internships in which you have taken

part. The interview may be broken up over several sittings if you desire or may be completed all at once.

schedule interview

Thank you for your time today. We look forward to interviewing you on [date/time]. [Interviewer], who can be contacted at [phone number], will meet you at [location].

Appendix B: Interview Questionnaire

SECTION 1: GENERAL INFORMATION

Name: _____

Major(s): _____

Minor(s): _____

Year in school (eg: 2nd year, Junior, etc): _____

Hometown: _____

In which languages can you communicate, how well, and how long have you studied those languages? (eg: French, intermediate, 5 years; German, functionally fluent, 2 years; Chinese, native language, my whole life; English, natively fluent, 2 years of study plus 5 years living in English speaking countries; etc)

_____

_____

_____

SECTION 2: GENERAL INTERNSHIP INFORMATION

1. Have you participated in one or more **engineering** internships **outside** (international) the United States of America?
   ☐ Yes / ☐ No

2. Have you participated in one or more **engineering** internships **within** (domestic) of the United States of America?
   ☐ Yes / ☐ No

3. Have you participated in one or more **non**-engineering internships **outside** (international) the United States of America?
   ☐ Yes / ☐ No

4. Have you participated in one or more **non**-engineering internships **within** (domestic) the United States of America?
   ☐ Yes / ☐ No

SECTION 3: INTERNATIONAL ENGINEERING INTERNSHIPS
If you answered YES to question 1, please complete this section. Otherwise, please skip to Section 4.

5. How many international engineering internships have you participated in? _____
   NOTE: if the participant has completed more than one international engineering internship, please indicate to which internship information belongs.

6. In which country was the internship located? _____

7. In which city was the internship located? _____

8. What company/organization did you intern with? _____

   _____

9. In which industrial/commercial/academic/other sector(s) is the company/organization active? (eg: heavy trucking, semiconductors, research institute, etc)

   _____

   _____

   a. If the company is active in more than one sector, in which sector(s) were you involved?
      _____

10. How many hours per week did you work? _____

    a. Was this considered "full-time" (40 hrs/week in the USA) in the country in which you interned?
       ☐ Yes / ☐ No

    b. If it was not considered full time, how was your position classified?

       _____

11. How long did your internship last? (eg: 5 months, 3 weeks, etc) _____

12. Did you go to school, study, or have other major commitments during your internship? (eg: studied language, took cooking courses, conducted research)

    _____

13. How did you find your internship? (eg: IE3 program, website, family friend, etc) Please be specific (eg: www.idealist.org, www.daad.de, etc)

_____

14. How did you apply to the internship? (eg: online application, resume and cover letter to the company, family contact, etc) Please be specific.

_____

_____

15. How were you notified of your acceptance as an intern? Please be specific.

_____

_____

16. How did you prepare for your internship? Please be specific.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

17. What would you recommend future Oregon State engineering students do to prepare for international engineering internships that is different from the way you prepared?

Are there any specific ways in which you prepared that you feel future students should follow? Please be specific.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

18. What expectations of the company, the work, the working environment, and any other issues which you feel are important did you have going into the internship?

_____

_____

_____

_____

_____

_____

19. What expectations did the company have of you?

_____

_____

_____

20. Were you compensated for your internship?
☐ Yes / ☐ No

a. If yes, how were you compensated? (eg: stipend, hourly wage, salary, housing, airfare, etc) Please be specific.

_____

_____

b. If yes, was the compensation in line with what native interns received? If it differed, how?

_____

_____

21. Was your company/organization prepared to receive you and have you begin work? Please explain.

_____

_____

_____

_____

_____

_____

22. Describe your first day on the job. _____

_____

_____

_____

_____

_____

23. What was the workplace like? Describe your working environment.

_____

_____

_____

_____

_____

24. Describe your desk/office/cubicle/etc. (eg: computer, desk, window, closet, did not have a defined workspace, etc)

_____

_____

_____

_____

25. Was there anything unexpected about your workplace?

_____

_____

_____

26. What was your boss/mentor like?

_____

_____

_____

27. Describe your coworkers.

_____

_____

_____

_____

_____

_____

_____

28. Did your coworkers and boss treat you as part of the team or equal? Explain.

_____

_____

_____

29. Were you treated differently than native interns?

_____

_____

_____

30. Please describe your position and role within the company/organization.

_____

_____

_____

_____

_____

_____

31. What sort of projects, assignments, or tasks were you given to complete? Please explain and be specific.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

32. Did you have a high or low degree of autonomy when completing your assigned tasks and projects? Explain.

_____

_____

_____

_____

_____

33. Was the degree of autonomy different than what you expected and what you are used to from domestic, American-based internships? Please explain.

_____

_____

_____

_____

_____

_____

34. What, if any, additional responsibilities not already listed did you have within the company/organization?

_____

_____

_____

35. Do you feel that the assigned projects and tasks were adequately defined and were there clear deliverables? Please explain.

_____

_____

_____

_____

_____

_____

36. Was assistance available to you and was there adequate one-on-one time with your mentor or boss? Please explain.

_____

_____

_____

_____

_____

_____

37. What did you learn from your internship experience?

_____

_____

_____

_____

_____

_____

_____

38. Do you feel the skills you learned on your internship were valuable and will benefit you in the future? Please explain.

_____

_____

_____

_____

_____

_____

_____

_____

39. Were the assigned projects and tasks a good match for your skills and interests? Please explain.

_____

_____

_____

_____

_____

_____

40. Were you given the resources necessary to complete your assigned projects and tasks? Please explain.

_____

_____

_____

_____

41. How did you benefit the company/organization?

_____

_____

_____

_____

_____

_____

_____

_____

42. Do you feel that you lived up to or exceeded the company/organization's expectations? Please explain.

_____

_____

_____

_____

_____

_____

43. Do you feel your international engineering internship experience was valuable? Please Explain.

_____

_____

_____

_____

_____

44. Would you recommend future engineering students pursue in an international engineering internship? Please explain why.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

45. What is your favorite memory of your internship?

_____

_____

_____

_____

_____

_____

_____

_____

46. What is your funniest or most embarrassing memory of your internship? Please explain.

47. What was your greatest achievement while overseas? It can be either a work-related or personal achievement. Please explain.

48. Please describe any major differences or similarities between American and international engineering internships which you wish to highlight for future engineering students considering international internships and why these are important.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

49. Do you have any suggestions of how future students can maximize their benefit from international engineering internships? Please explain.

_____

_____

_____

_____

_____

_____

_____

50. Do you have any advice which you wish to share with future engineering students interested in international internships? Please explain.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

51. Do you plan to work overseas in the future? Why? Please explain. (eg: where, why, when, etc)

_____

_____

_____

_____

52. Did your international engineering internship change your life, have no effect, or reinforce your chosen path? Please explain.

_____

_____

_____

53. Do you have anything further you wish to share with future engineering students interested in international engineering internships? Please explain.

SECTION 4: DOMESTIC ENGINEERING INTERNSHIPS -- OPTIONAL --
If you answered YES to question 2, please complete this section. Otherwise, please skip this section.

54. How many domestic engineering internships have you participated in? _____

55. Where was the internship located? _____

56. What company/organization did you intern with? _____

    _____

57. In which industrial/commercial/academic/other sector(s) is the company/organization active? (eg: heavy trucking, semiconductors, research institute, etc)

    _____

    _____

    a. If the company is active in more than one sector, in which sector(s) were you involved?

       _____

58. How many hours per week did you work? _____

    a. Was this considered "full-time" (40 hrs/week)?

       ☐ Yes / ☐ No

59. How long did your internship last? (eg: 5 months, 3 weeks, etc) _____

60. Did you go to school, study, or have other major commitments during your internship? (eg: studied language, took cooking courses, conducted research)

    _____

61. How did you find your internship? (eg: MECOP program, email newsletter, etc)

    _____

62. How did you apply to the internship? (eg: online application, resume and cover letter to the company, family contact, etc) Please be specific.

    _____

    _____

63. How were you notified of your acceptance as an intern? Please be specific.

_____

_____

64. How did you prepare for your internship? Please be specific.

_____

_____

_____

_____

_____

_____

65. What expectations of the company, the work, the working environment, and any other issues which you feel are important did you have going into the internship?

_____

_____

_____

_____

_____

_____

66. What expectations did the company have of you?

_____

_____

_____

67. Were you compensated for your internship?

☐ Yes / ☐ No

a. If yes, how were you compensated? (eg: stipend, hourly wage, salary, housing, etc) Please be specific.

_____

_____

68. Was your company/organization prepared to receive you and have you begin work? Please explain.

_____

_____

_____

_____

_____

_____

69. Describe your first day on the job. _____

_____

_____

_____

_____

_____

70. What was the workplace like? Describe your working environment.

_____

_____

_____

71. Describe your desk/office/cubicle/etc. (eg: computer, desk, window, closet, did not have a defined workspace, etc)

_____

_____

_____

_____

72. Was there anything unexpected about your workplace?

_____

_____

_____

73. What was your boss/mentor like?

_____

_____

_____

74. Describe your coworkers.

_____

_____

_____

_____

_____

_____

_____

75. Did your coworkers and boss treat you as part of the team or equal? Explain.

76. Please describe your position and role within the company/organization.

77. What sort of projects, assignments, or tasks were you given to complete? Please explain and be specific.

78. Did you have a high or low degree of autonomy when completing your assigned tasks and projects? Explain.

_____

_____

_____

_____

_____

79. What, if any, additional responsibilities not already listed did you have within the company/organization?

_____

_____

_____

80. Do you feel that the assigned projects and tasks were adequately defined and were there clear deliverables? Please explain.

_____

_____

_____

_____

_____

_____

81. Was assistance available to you and was there adequate one-on-one time with your mentor or boss? Please explain.

_____

_____

_____

_____

_____

_____

82. What did you learn from your internship experience?

_____

_____

_____

_____

_____

_____

_____

_____

83. Do you feel the skills you learned on your internship were valuable and will benefit you in the future? Please explain.

_____

_____

_____

_____

_____

84. Were the assigned projects and tasks a good match for your skills and interests? Please explain.

_____

_____

_____

_____

_____

_____

85. Were you given the resources necessary to complete your assigned projects and tasks? Please explain.

_____

_____

_____

_____

_____

_____

86. How did you benefit the company/organization?

_____

_____

_____

_____

_____

_____

_____

87. Do you feel that you lived up to or exceeded the company/organization's expectations? Please explain.

_____

_____

_____

_____

_____

_____

88. Do you feel your domestic engineering internship experience was valuable? Please Explain.

_____

_____

_____

_____

_____

_____

_____

_____

_____

89. What is your favorite memory of your internship?

_____

_____

_____

_____

90. Do you have any advice which you wish to share with future engineering students interested in domestic internships? Please explain.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

91. Did your domestic engineering internship change your life, have no effect, or reinforce your chosen path? Please explain.

_____

_____

_____

_____

_____

_____

_____

_____

92. Do you have anything further you wish to share with future engineering students interested in domestic engineering internships? Please explain.

_____

_____

_____

_____

_____

_____

_____

_____

SECTION 5: ADDITIONAL DOCUMENTS

93. Do you have any photographs or other documents, videos, or images which you wish to share with future engineering students interested in international engineering internships and which we may publish as part of this study?
    ☐ Yes / ☐ No
    NOTE: if yes, please provide hard or digital copies (digital preferred) to the research team at your convenience.

94. Do you have an example of the resume or Curriculum Vitiate (if any) which you submitted to your international internship host company which you wish to share with future engineering students interested in international engineering internships and which we may publish as part of this study?
    ☐ Yes / ☐ No
    NOTE: if you answered yes to this question, please provide a hard or digital copy (digital preferred) to the research team at your convenience.

SECTION 6: ADDITIONAL COMMENTS

95. Are there any further comments, notes, or anything else you wish to tell the researchers or future engineering students interested in international engineering internships?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Appendix C: Curriculum Vitas

Douglas Lee Van Bossuyt

Tunisia: S/C Mr. & Madame Azouz ● 11 Rue 6497 Cite-Romana II ● 1068 Tunis ● Tunisia ● Phone: 21.083.087
USA: 14700 NE Spring Creek Lane ● Newberg OR 97132 ● USA ● Phone: +1 503.538.5717
vanbossd@onid.orst.edu ● http://oregonstate.edu/~vanbossd/
Date of Birth: 12 June 1983 ● Nationality: American ● Age: 21 ● Marital Status: Single

SUMMARY OF QUALIFICATIONS

- Past participant in German American Partnership Program (GAPP) exchange program
- Three previous internships at Planar Systems and Freightliner in Manufacturing Engineering
- Four international award winning robotic designs
- Experience using multiple CAD systems

EDUCATION

Oregon State University, Corvallis, Oregon, USA. Anticipated graduation December 2006

- Honors B.S. Mechanical Engineering
- Honors B.A. International Studies of Mechanical Engineering
- Relevant Course Work
  - Mechanical component design
  - Dynamics
  - Mechanics of materials
  - Materials science
  - Electrical fundamentals

Université du 7 Novembre à Carthage, Tunis, Tunisia. September-December 2004

- Coursework in Arabic language, Tunisian culture, women's studies, and environmental science

Newberg Senior High School, Newberg, Oregon USA 1997-2001

- Honors High School Diploma
- Lead a team of 15-20 students in the design, construction, and competition of robots

PROFESSIONAL EXPERIENCE

Marbrerie Tunis Carthage, Tunis, Tunisia, IE3 Global Intern January to June 2005

- Automating marble block cutting equipment for improved efficiency and safety
- Improving efficiency of numeric marble milling machines
- Interacting directly with Tunisian workforce in Arabic, both Modern Standard and Tunisian dialect

Freightliner LLC (a DaimlerChrysler company) Portland, Oregon, USA
Manufacturing Engineering, Test and Technology Group, MECOP Intern April to September 2004

- Designed, built, tested, and deployed several small-scale and mid-sized production electronic equipment test machines
- Participated in a Component Redesign Taskforce
- Researched and implemented methods to reduce warrantee claims on Antilock Brake Systems
- Designed and deployed several tools to the production lines across the Freightliner North American factories
- Wrote instruction manuals and maintenance manuals for production test equipment
- Wrote Programmable Logic Controller (PLC) code for test equipment

Planar Systems, Inc. Beaverton, Oregon, USA
Manufacturing Engineering Intern Level 2 June to September 2003

- Designed and implemented tooling and fixtures in support of the Liquid Crystal Display (LCD) and Electro Luminescent (EL) manufacturing process
- Created and revised work instructions supporting the manufacture of LCD and EL products
- Conducted R&D work on ultra-bright transflective LCD displays
- Prototyped new flat panel displays for future production

Planar Systems, Inc. Beaverton, Oregon, USA
Manufacturing Engineering Intern Level 1 June to September 2002

- Created and revised work instructions for fabrication and assembly equipment
- Interfaced with production staff daily
- Introduced cost-savings measures in production
- Drafted tooling and fixtures in SolidWorks

HONORS AND AWARDS

- American Society of Mechanical Engineers (ASME): International Design Contest 2004 (5th Place), Region VIII Design Contest Winner 2004. Designed and built a miniature hazardous material removal robot.
- Society of Manufacturing Engineers (SME) International Design Challenge Judge's Choice Award: 2001 for humanoid robot replicating upper body skeletal and muscular functions, 1999 for pneumatically powered hexapod walking robot
- Mortar Board Senior Honor Society – Communications Officer
- Alpha Lambda Delta Honor Society

PROFESSIONAL MEMBERSHIP

- American Society of Mechanical Engineers – Newspaper Writer, Sophomore Class Co-Representative
- Society of Manufacturing Engineers – Chair Elect
- Pi Tau Sigma – Omega Chapter

ARTICLES

- "I am the Woodsman," center story for The Chronicle, Oregon State University Honors College Student Magazine, Spring 2004
- "JACK," cover story for Amateur Robotic Supplement Nuts and Volts Magazine, August 2002

INTERNATIONAL EXPERIENCE

- TUNISIA: Six month IE3 Global Internship and three month OSU Study Abroad (2004-2005)
- EGYPT: Three weeks abroad (2000)
- GERMANY: One month academic exchange with GAPP in Lüchow (1998)
- MOROCCO, BELGIUM, UNITED KINGDOM: five weeks abroad(1998)
- JAPAN: Two week academic exchange to sister school (1997)
- EUROPE: Five weeks abroad (1994)

SKILLS

- Computer Software: Microsoft Office, Lotus WordPro, SoildWorks, AutoCAD, MasterCAM
- Programming experience in HTML, PLC ladder logic and flow logic, Some C programming
- Languages: Modern Standard Arabic (intermediate spoken and written), German (beginning level spoken and written), English (native speaker)

INTERESTS

- Robotics and Automation, human-machine interfaces, electrical test systems, international engineering collaboration, mechanical design process, dynamic systems analysis, Supply Chain Management
- Photography, website design, OSU Cycling Club – Vice President, hiking, Principal Cellist in OSU Chamber Orchestra, Cellist in Chehalem Symphony at George Fox University, travel, running

Tunisia: S/C Mr. & Madame Azouz ● 11 Rue 6497 Cite-Romana II ● 1068 Tunis ● Tunisia ● Phone: 21.083.087
USA: 14700 NE Spring Creek Lane ● Newberg OR 97132 ● USA ● Phone: +1 503.538.5717
vanbossd@onid.orst.edu ● http://oregonstate.edu/~vanbossd/

Jaime Junell

147 NW 11th Street
Corvallis, OR 97330
Phone: (503) 516-1263
Email: junellj@onid.orst.edu

Education	**2004- present** **Oregon State University** **Corvallis, Oregon** Pre-Mechanical Engineering University Honors College Expected date of Graduation: June 2008 Expected degree earned: Bachelors of Science Mechanical Engineering Overall GPA: 3.68 **2000 – 2004** **Gladstone High School** **Gladstone, Oregon** Honors diploma Talented and Gifted Date of Graduation: 06/11/2004 Overall GPA: 4.0
Work Experience	**Apr. 2005 – present** **Undergraduate research assistant** **Corvallis, Oregon** Department of Mechanical Engineering, Oregon State University • Knowledge gained: ▪ Instrumentation of a flow loop associate with two phase laminar flow ▪ Pressure calibrations with deadweight calibrator ▪ Conductivity testing ▪ Setup of continuous wave laser ▪ Laser induced fluorescence ▪ Use of several software including: Phantom, Solidworks, Microsoft Visio, and LabVIEW Contact: Dr. Deborah Pence, Associate Professor, Thermal Fluid Sciences pence@engr.oregonstate.edu **June – Sept. 2005** **Waverly Country Club Server** **Portland, Oregon** Contact: Bryan Fisher, Assistant Manager (503) 654-6521
Computer Software	I am proficient in the following software applications: • Matlab • Windows 2000/XP • Solidworks • Excel
Scholarships/ Awards	• AeA Technology Scholarship through Intel • OSU College of Engineering Dean's Scholarship • OSU Diversity Achievement Scholarship • Chevron/Texaco Scholarship • Elks Legacy Scholarship • Chinese Consolidated Benevolent Association Scholarship
Clubs/Groups	OSU Human Powered Vehicle Team (HPV), ASME, SWE, University Honors College
Hobbies and Interests	Travel, Space Exploration, Soccer, OSU women's Lacrosse, Chess, and Singing

Academics/ Career Goals	I have always placed a high priority on intellectual progress as well as my own personal educational progress. I believe that knowledge is what holds this earth together. That is why I have dedicated my life to the pursuit of knowledge. I am currently enrolled at Oregon State University in mechanical engineering. I'm also hoping to earn a minor in physics as well. After I graduate I plan on going to graduate school in aerospace engineering so that I can someday achieve the title of astronaut. This is my main goal in life. I think that space has great potential for the gaining of knowledge and the bettering of humanity.
Research	For the last year I have worked with Dr. Deborah Pence and her research involving two phase flow through micro-channels in a fractal like branching system. We believe that this will be a much smaller, lighter, more efficient cooling system. The U.S. Army is funding the research for soldier cooling devices in warm weather. My part of the research is to help the graduate students with various parts of the project. To date, I have done pressure calibrations with a deadweight calibrator, tested conductivity of silver based paint, helped setup and operate a continuous wave laser, worked with laser induced fluorescence, helped build and instrument a flow loop associated with two phase flow, used high speed/high resolution imaging to take videos of that flow, and have gathered data using a flow loop involving micro-channels in a fractal-like branching system. Some of the software I have experienced in my job includes modeling in Solidworks, Phantom photo imaging, Microsoft Visio, LabVIEW, and Adobe Acrobat.
Skills	I would like to highlight my experience with the program MATLAB. I have taken a course dedicated to learning this program and believe that I am proficient in the programming language. I have utilized my knowledge of MATLAB in other classes I have taken when I need to analyze data from the class. I have also taken a class in the modeling program Solidworks, which I have already used in a work situation during my research. I have also used this program in my extracurricular activities. I am part of my universities Human Powered Vehicle team, where we build a bicycle and race it against other universities. I helped model parts of the bike on Solidworks. Throughout my life I have learned several skills that couldn't be taught in a classroom. I have learned to problem solve, communicate with others, and be a strong leader. These are the skill that I believe will make me an excellent employee.
Interests	My interests span through a whole spectrum of activities from sports to chess. I've played soccer my whole life and generally consider it to be part of who I am. On the field I am a fierce leader, a team player, and one of the most skilled. This is how I try to be off the field as well. Although I love to play sports, my greatest interest is travel. I was exposed to travel at a young age and I have learned to love seeing new places, new people, and new cultures. This is why I believe I would be perfect for this opportunity in Italy.

Bibliography

1. In-Person Survey of Several Engineering Students, May 23, 2007. Corvallis, Oregon.

2. International Study at OSU Engineering (2007). *Explore the world! Learn another language! Become a better engineer!* Retrieved May 24, 2007, from http://engr.oregonstate.edu/students/international/

3. International Programs Office Student Profiles (2007). *Student Profiles.* Retrieved May 10, 2007, from http://oregonstate.edu/international/profiles/

4. Anthropology Student Profiles (2007). *Student Profiles.* Retrieved April 27, 2007, from http://oregonstate.edu/cla/anthropology/students/

5. Honors College Student Profiles (2007). *Student Profiles.* Retrieved April 11, 2007, from http://oregonstate.edu/dept/honors/profiles/

6. E-Campus Student Profiles (2004). *Student Profiles.* Retrieved May 14, 2007, from http://ecampus.oregonstate.edu/about/learn-more/students/profiles/default.htm

7. International Degree Stories (2006). *Student Stories.* Retrieved May 2, 2007, from http://oregonstate.edu/international/degree/stories/

8. International Degree Thesis Examples (2007). *Examples.* Retrieved May 15, 2007, from http://oregonstate.edu/international/degree/current/thesis/examples/

9. College of Business Alumni Profiles (2007). *Alumni Profiles.* Retrieved May 17, 2007, from http://www.bus.oregonstate.edu/alumni/profiles.htm

10. In-Person Survey of Several Engineering Students, May 24, 2007. Corvallis, Oregon.

11. Junell, Jaime. In-Person Interview, April 28-29, 2007. Ashland, Oregon.

12. Van Bossuyt, Douglas. In-Person Interview, May 10, 2007. Corvallis, Oregon.

13. "John." Facebook.com Message Interview, May 3, 2007. Corvallis, Oregon.

14. MECOP Website (2007). *Information for Student Interns.* Retrieved May 24, 2007, from http://mecop.oregonstate.edu/

15. Junell, Jaime. (2006). *Curriculum Vitae.*

16. Van Bossuyt, Douglas. (2005). *Curriculum Vitae.*