IGERT FELLOWSHIP
INTERNATIONAL EXPERIENCE

Trip Report  |  Summer 2014

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Trip Report

Trip Report Summary

This summer I spent from May 17th to June 25th, 2014, travelling to four different countries and 6 different cities in Europe including (1) Berlin and (2) Munich, Germany, (3) Helsinki, Finland, (4) Eskisehir and (5) Istanbul, Turkey, and (6) London, England. During this time I attended four large academic functions, including 2 conferences, 1 workshop/forum and 1 research seminar. At each of these functions I presented my research in the form of either a presentation or poster session. I was able to meet with and discuss with professors, students, and industry professionals in the areas of Smart Grids, Clean Energy, and Building Simulation and Modeling. I am extremely thankful to have had this opportunity to travel and live abroad and feel it was valuable to my graduate school experience, and future career. I thank the National Science Foundation, the University of Texas at Austin, the IGERT program, the Technical University of Munich and the many other people and programs that made this experience possible. This report provides a brief summary of my goals for traveling to Europe with IGERT, a list of accomplishments, and a set of recommendations for future IGERT travelers who will plan their own trips abroad in the future.

Trip Goals

The goals of my Europe 2014 summer travel include the following. These goals are divided into two sections, including (1) academic goals and (2) personal goals. I feel that I have accomplished all of these goals as a result of this trip and experience. How and to what extent these goals were accomplished is discussed in the Accomplishments section of this report.

My dissertation is entitled “Smart Technology-Enabled Methods to Reduce Energy Use and Peak Loads in Buildings. Thus my “research areas”, as referred to below, that encompasses the multiple goals of my research include residential and light commercial building energy use, demand response, and smart grids, meters, and other associated technologies.

Academic Goals

1. Improved understanding of the efforts of other universities and companies in my and related research areas.
2. Improved understanding of the differences in the needs and focuses of different countries and universities in my research area.
3. Establishment of new connections with professors, academics and professionals working in my field and related fields in both the U.S. and abroad.
4. Broadened exposure of my research and interests in an international setting.

Personal Goals

1. Experience living and working outside of Texas/United States
2. Get to know other IGERT Fellows better through travel and conferences
Accomplishments

This section briefly describes highlights of what I accomplished in each of the locations visited, including both academic and personal.

Finland

I travelled to Helsinki, Finland because another PhD student, Brandon Boor, also advised by my graduate advisor, Dr. Atila Novoselac, is currently doing a Fulbright scholarship there. Brandon conducts his research at VTT/Aalto University, a university in Finland near Helsinki. Brandon and I worked together prior to my visit, to set up a research seminar with the Civil and Mechanical Engineering departments. During the presentation at VTT on Friday, May 23, 2014 both Brandon and I first provided an overview of UT Austin, then each gave 20 minute presentations on our research. We also listened to presentations from several other researchers from both Finland and other universities. Afterwards we had time to talk with other professors and graduate students at VTT, and also took a tour of the HVAC and building simulation laboratory. The following evening we got together with a small group of graduate students studying in Finland to have dinner and go to a Finnish sauna. The picture on the left is with several of the VTT students standing in ice cold water after being in the sauna.

I feel this experience was highly beneficial for me, both for academic exposure and personal experience. It was beneficial to meet other students and professors studying in similar areas. In particular I found it interesting to learn that Finland has near 100% penetration of smart meters in residential buildings, and also experiences peak load problems. Their peak load problems, however, are due to renewable energy sources including wind and solar. I also found the laboratory very interesting. Since laboratory space is extremely tight in Finland, unlike the residential test house at the PRC campus at UT Austin, VTT uses a “virtual” building, which includes all physical systems of a building such as appliances, water heater, solar panels, etc... but the physical house is simulated in an energy modeling program. I had never thought of doing this before – it was very interesting to see in action.

Germany

While I spent time in both Munich and Berlin, the majority of my academic goals were accomplished while in Munich. In Munich I was able to meet with Petra Lidel and Werner Lang and several students at the Technical University of Munich to discuss my research and the on-going collaboration with TUM and UT Austin for the 2015 Solar Decathlon project. I also was able to set up meetings with several doctoral students at different universities in the area, including Yang Wang at ZAE Bayern in Bavaria, Jochen Scholtes at TUM, and Markus Welbenberger at Hochschule Fur Angwandte Wissenschaften. All of these PhD students were working on building/energy related research. It was also beneficial to learn from then how a PhD is achieve in other countries beyond the US. I didn’t realize that this process was so different in different countries. We also had the opportunity to attend the IGSSE Forum for graduate student from TUM. We went by bus approximately 2 hours east of Munich to a small town on the border of Germany and Austria. Here I met with students from TUM, Architecture at UT Austin, and all the other IGERT fellows traveling in Europe. During the forum we attended two days of workshops,
did a small, interdisciplinary project with UT and TUM students, and had the opportunity to present our research posters. As a part of the forum. We also were given a tour of the monastery.

Of all the countries I visited, I spent the most time in Germany. Having the opportunity to living in one place for an extended period of time gave me a better feel for lifestyle differences between Europe and the U.S. It was an excellent opportunity to be able to meet people in Germany that would be working with us at UT Austin on the solar decathlon. Munich was also the only time that all the IGERT students were in one location. We were able to get together often, including dinners, watching the world cup, going to museums, hiking, and other activities. It was very nice to get to know the other IGERT students better in a different setting.

Turkey

I spent approximately two weeks in Turkey. During this time I spent approximately one week in Istanbul I attended a conference in on clean energy. The best part of this experience was the people I was able to connect with at the conference. I was able to connect with Dr. Derek Baker at Middle East Technical University in Ankara, who collaborates with Dr. Korgel at the University of Texas at Austin on solar energy projects. I learned a significant amount about the current solar energy situation in Cyprus and Turkey, and much of the research that is going on in this field in Turkey. I found it interesting to learn that Turkey does not allow solar panels to be connected to the electric grid, however it has one of the highest penetration rates of solar water heating in the world. I also was able to learn from Dr Baker about the differences between being a professor in the U.S. and in Turkey. Dr. Baker is in a similar situation to myself in that his spouse is from Turkey and also is a professor. It was interesting to hear his perspective, having taught both at US and Turkish institutions.

While at the conference I also met with several professors that I have continued to talk with about building energy research after the conference. This includes Dr. S.A. Sherif, a professor in mechanical engineering at the University of Florida. Dr. Sherif teaches a course on energy & buildings at UoF. During his presentation at the conference he discussed several of the projects that he developed to help improve his students’ understanding of the topics he discusses. As someone who is hoping to be a professor in the future, it was great to talk to someone who so highly values the students learning the material being taught in this field. He will be talking with me later this summer and offered to send me his course materials as a reference.

While in Turkey I was also able to meet up with Bonny Roberts and Alex Headley from IGERT during the conference and for dinner, and helped provide suggestions to them on what to visit while in Istanbul. While in Istanbul my husband, Bora Cetin, who attended Istanbul Technical University for his undergraduate studies, took me to the campus to meet with several professors, see their laboratories, and tour the campus. The picture on the right is me with several of the other people I met with in Istanbul.

England

I attended the BSO14, Building Simulation and Optimization conference at the University of Central London, while staying in England. This conference was, of all of the academic events I attended, the conference which was most narrowly focused and
most closely related to my research. It was also sponsored by IBPSA, the European sister organization to ASHRAE, a professional organization I am highly involved with in the U.S. Many of the people that attended this conference were also involved in ASHRAE. I wrote a conference paper for this conference and presented it at the conference thus I was able to explain my research to a broader but very focused group of researchers. I met many people at this conference from many different countries that I have continued to talk with after the end of the conference. To name a few, Dr James O’Donnell at UCD Dublin explained to me more about the funding and proposal procedures in Europe, Dr Elaine Simpson explained to me more about air flow in buildings in London and how that is considered from an industry perspective. Harsh Tharper of Foster & Partners, a well know architecture firm based in the UK and also where one of my professors used to work, explained to me more about some of techniques for collaboration between architects and engineering in the same company. Dr Catalina Spataru is a professor at UCL and teaches courses on Smart Grids at UCL and also one of the organizer of the conference. We talked at length about teaching smart grid related courses, and also about possible collaborations between UT Austin and UCL, as well as several possible funding opportunities to do so. We will be speaking via skype later this month to continue this conversation.

Summary
In summary, this summer experience was an excellent opportunity to be able to live abroad, meet many other people that otherwise would be hard to connect with, and connect more with the other IGERT students. I was able to discuss my research with others, and get suggestions for additional ideas and extensions of what I have already done, as well as learn more about what is going on in my and related fields concurrently in Europe. It also helped expose me to the many different lifestyles of four different countries.
Recommendations for Future Students:

For those IGERT PhD students who plan to do a similar self-planned summer academic trip I have the following recommendations based on my experiences this summer. The most important things I would like to discuss is related to making the most of the academic opportunities (conferences, connections) that being in Europe offers. As someone living in the US, traveling to Europe is expensive and rarely happens more than once or twice in a PhD student’s career as a student. This gives you the chance to meet people that you would likely never otherwise have met. Second is to take in as much local culture and experiences as possible, but to be able to enjoy this a good amount of planning is needed ahead of time.

Conferences: The benefit of conferences for me was not necessarily what you learn in the technical sessions that are presented as a part of the conference, it is in the people that you meet with and talk to. I recommend the following in planning and attending conference abroad:

- Go to as many conferences as you have the opportunity to go.
- At each conference, if you are able to plan ahead of time, try to participate through a poster session or presentation. This exposes your area of interest to other and helps encourage other people interested in the same thing to talk to you afterwards.
- Force yourself to go outside your comfort zone, talk to professors, professionals and other students about their research. You never know who you will meet and who will later on be someone who can identify your name in a crowd of applicants for a job you really want.
- Bring BUSINESS CARDS and ask people for theirs, give them yours. Mark on the cards where you met them and when.
- Follow up with the people you met by email. This helps reinforce the connection you established at the conference.
- It is really nice to go to a conference where you know someone so don’t initially feel alone in a crowd of people that know one-another. I’d recommend trying to go with someone else in IGERT if possible. This also gives you someone to explore the city with (if you are alone).

Connections

- Other students are a great way to learn more about local culture and customs, the best places to get coffee, go for a run, study, museums and places to visit... Meeting up with and doing things with local students make a country’s experience 100% better and more interesting and meaningful.
- Things are fairly quiet at universities in the summer, though some operate on different semester schedules than the US. If you would like to meet someone at a university contact them ahead of time and try to set a date and time to do so.
- Ask previous IGERT students for suggestions on things to do.
- If there are other people in the same place you are from IGERT. Do things with them. It’s an excellent opportunity to get to know them better outside of school if you haven’t so already.

Living Abroad: Living outside of where you normally do for an extended period of time, requires you to figure out many things beyond what a typical tourist needs to know. It requires time to get used to, and can be exciting and tiring at the same time. It also gives you perspective on how different the living standards, culture and values. Some things I learned on the trip include the following:

- Communication:
- Get a cell phone before you come, and makes sure its unlocked and will use another sim card, or can work using your provider’s services. For me, since there was what seemed like so little time in Europe, I’d recommend figuring out how you will be able to communicate before coming. I used an international cell phone and international sim card which I think is best if you a spending a significant amount of time in not one but multiple countries. There are lots of places to find Wi-Fi to use skype or google to call via the internet.

- Buy an adaptor set for your electronics for all the countries that you will be traveling to (e.g, England uses different plugs than Germany), and maybe an extension cord as well. Older buildings don’t have that many plugs and there not in the most convenient places.

- Bring your smartphone and keep it in airplane mode, use it to download offline maps, keeping track of transit schedules, and other information. There are LOTS of great free apps out there.

- There was not too much need to learn more than the basics in another language as long as you’re living in a major city.

- Lodging:
  - AirBNB is a great resource, but some hosts are skeptical to accept you into their home without recommendations or reviews by others. I would recommend getting one of your friends to recommend/review you on the site so that this is not a barrier to finding a place that suits your needs.

- Food:
  - There is much less processed food in other countries, and in addition, fresh food in Europe smells and tastes real!
  - Most food is not labeled in English – your chance to try new things!

- Transportation:
  - Public transit in Europe is better than the U.S. by far. Buy weekly or monthly passes for cheaper rates and more convenience.

- Culture:
  - In Germany everything is closed on holidays and Sundays, including grocery stores – plan for it! Otherwise you’ll need to find a train station or tourist location with people that are not locals.

Traveling:
- Travel light – especially if you are moving around a fair amount. Less baggage means less hassle.
- Most airlines allow you to check one bag for free between countries. They’re also less strict (in most cases in my experience) with security
- Take pictures! (and don’t forget your charger)