

RISE 2019: Internship Report

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ABSTRACT

I spent two months on an internship at HafenCity University in Hamburg, working with my supervisor Christoff Langer. I provided support for a research project on Chloride migration in concrete, with additional focus on the effect of freeze thaw conditions. I tested the Chlorine content of concrete of differing cement content and storage conditions using the LIBS (Laser Induced Breakdown spectroscopy) device, as well as, wrote computer programs to graphically compare the data obtained from the different specimens.

Do you have helpful tips on the Visa or residence permit application, opening a bank account, on traveling, on finding housing?

If you need a Visa, book an appointment at your German Consulate as soon as possible, as the closest one may be an entire month away. In terms of local travel, it is best to ask a local (your supervisor or flatmate) what the best option is once you arrive. For instance, my flatmate let me know I could travel by shared bikes mostly for free instead of buying a bus pass. And, for finding housing, do not be shy! Send personalized emails to every possible place on every possible apartment website because it can be a bit difficult to get noticed (but although it takes a bit of work, chances are high you will love the place you get)

What is your impression of research in Germany?

From my viewpoint, research in Germany seems very inclusive and accessible. My supervisor had several students from the University assisting with our project, as well as several colleagues doing research on similar topics, and who would share findings and hypotheses with each other. Also, the fact that programs such as the DAAD exists just shows how research in Germany treats the pursuit of knowledge as a community effort to enhance society, not just as a way for individuals to build prestige and credentials.

What did you find particularly interesting about your research?

Surprisingly, the most interesting part of my research experience came as I read literature related to our topic. Our research topic focused on chloride migration and the interaction of two processes (Diffusion and Freeze Thaw). However, I learned that there are so many factors that affect the durability of concrete, such as moisture, curing and cement content just to name a

few. So, I am very interested in potentially expanding this research to these different factors, and see how they can ultimately be compiled to make more accurate estimates of concrete lifespans in the future. Also, it was very exciting for me to use machines that were very new to me (such as the Frost-Thaw chamber and LIBS device)

Describe a typical day of your internship.

Once I arrive at around 9:00, I would check the plan that my supervisor and I created to see what tasks I had to do on that day. Often, I would start by analyzing the LIBS data from the previous day then start testing the new samples to be tested and go to lunch around 11:30 while it ran (samples took anywhere from 1 to 2.5 hours each). Then, I would retrieve the data from the test and analyze that while a second sample as run. Occasionally, I would change the solution that some samples were being stored in and test and record their strength using ultrasonic runtimes. While I was not testing or analyzing LIBS data, I would be coding in MATLAB or using excel to perform statistical analysis on the compiled the data and/or graphically represent it so we could ultimately start observing patterns and drawing conclusions from the data we were collecting. In any case, I would be done by 5:00 pm after which I sometimes hung out with other DAAD interns in the Hamburg area.

Highlights of your stay (both personal and academic)

I loved that I could never be bored in Hamburg, there was always some fun and/or cultural event. Altonale, STAMP(Street Art Melting Pot) festival, Sommer in HafenCity, Duckstein Festival, Hamburger DOM are just a few memorable ones during my stay.

I also enjoyed interactions with other DAAD interns very much. The interns at HCU would have lunch together every week, and it was very comforting to talk to other people in a similar situation (living in a foreign country). Then, after the Heidelberg meeting, it was also comforting to have connections in other cities and know you would not be alone even if you decided to travel!

What is your impression of Germany in general?

I would describe both Germany and its residents as diverse and beautiful. I remember observing so many different kinds of people of different ages and ethnicities just coexisting together when I was relaxing at the beach just 20 minutes walk from my flat. Then, I saw Heidelberg and how much different it was from Hamburg and Berlin, which was also very different from the more rural agricultural areas I saw during my train rides. Every day of my internship I felt like there is always something else unique and exciting to do and see in Germany, and I would love to return to explore it deeper!

“I agree that my report and accompanying pictures may be used by the DAAD in printed materials, presentations, and on websites in order to inform funding organisations, sponsors, and students about the RISE program.”