Shiyu Wei
Massachusetts Institute of Technology
School of Architecture and Planning
University of Stuttgart
Institute for Computational Design
June-August 2013
Deutschland!!
Internship location: { Stuttgart }

Expectations before going

1. Before going to Germany I was afraid that language would be an issue, as I didn’t have any German experiences.

2. I thought that I would be working with the Institute doing research on aggregated architecture, but ended up joining the team that was building summer pavilion, which was a class.

3. I had never been to Germany before, and had expected Stuttgart to be a quaint European city, but it ended up being very modern and new. Another thing that I didn’t realize was how Germany was so heavily bombed during WWII.

4. Having been to France and interacted with the cold Parisians, I didn’t expect the Germans to be so friendly and happy, especially Germans who had some beer.

5. One expectation I had that did came true, was eating a lot of pork and sausages.
During the summer I was part of the team of students at the Institute for Computational Design working on a summer pavilion. The pavilion explores a structure that is wound with glass fiber that is reinforced with resin, and the geometry is a hyperbolic column that originated from the geometry of a microscopic structure in an elytra beetle wing.

As you see on the left, the Kuka robotic arms are winding a component of the pavilion, which consists of around 40 of these parts. Each component will be fabricated individually, and then assembled together at the end.
Internship details

Project Description | how did you use your MIT training and skills?

Here you can see two finished components. The white part are glass fiber dipped in resin (for the geometry and lighting), and the black fibers are carbon fiber dipped in resin (which serve as the structure).

My part in the internship was trying to develop a computer script that could predict the fiber-fiber interaction, to see if there are any unhappy fibers that would not stick to the overall geometry. The next slide has some tests turning the originally computer generated winding sequence into a geometry that takes into consideration the fiber interactions.

I was able to use the skills in computation that I learned at MIT to this part. This is also a good practice for me to use what I had learned instead of letting my programming skill gather dust in the back of my head.
Internship details

Project Description | how did you use your MIT training and skills?

COMPUTER GENERATED WINDING PATTERN WITHOUT FIBER-FIBER INTERACTION

PROCESSED WINDING WITH PYTHON SCRIPT
Internship details

Project Description | how did you use your MIT training and skills?

For the second part of the summer I was working on a base for the pavilion. The base a bit tricky because of the geometry of the global form, and went through several iterations of the layout of the lattice of wood structure underneath.
Within the community

I really enjoyed how pastoral and peaceful the university was, here is a picture of the dorms. As quaint as they look, it was a bit awkward for me to be the only girl in a dorm full of men. Most of them are very nice and friendly, and I learned how to cook some German dishes from a Bulgarian student. The population is very international (I believe that over half are international), so I also learned a lot about other cultures as well as the German culture. In this community, one thing that was funny was that people always asked: “Where are the Germans?”
I think the most lasting impression that I had of Germany was how open it was. I especially appreciate the care and professionalism that everyone put into their job. Unlike the US, where you are expected to be connected to work even after hours, there is a good separation between life and work.

Having done extensive traveling (weekend trips) through the summer, I feel that I was able to see and experience many pieces of architecture that previously I could only imagine in photos. Actually seeing these master pieces kind of took them off the pedestal for me. I realized that as “great” as they are, these buildings are still designed for use by the average person, such as myself.

I think this trip definitely inspired me in that I feel like I am less restrictive in terms of what I think is good architecture. The more I see, the more ideas I have about architecture, which makes me very happy and encouraged.
Advice for future interns

if there is anything worth remembering, it’s this:

1. Train tickets are cheapest when booked in advance, also you can purchase a Probe Bahn Card for 25% discounts
2. Most people in Germany speaks English!!! (this was a rather pleasant surprise)
   • Although you should try to learn some (I wish I learned more)
3. Germans are very friendly!
4. Definitely try to travel, the experience is amazing. Go to the neighboring countries if you have a chance!
5. Learning some necessary vocab before going is helpful, such as “exit”, “next stop”, “hauptbahnhof”, etc
6. TRAVEL A LOT!
Next steps

Will you continue any work with your advisor/host in the future? Any patents, publications or presentations? What challenges (cultural, language) did you overcome?

The pavilion is an one-year event, and the final construction and setting up for display should be finished soon. This summer was invaluable in terms of the set of skills that I was exposed to and used, as well as working in a team.

While on the surface there weren’t any cultural difficulties to overcome, as many people in Germany speak English and it was easy to figure out how to use the public transit system to get around. But the ideas and working styles were different. Especially in Architecture, I feel that the European architecture schools focus a lot more on group projects and working as a group rather than the individual.
On record

“This summer was invaluable to me in terms of the plethora of traveling experiences, friendships that were formed, as well as getting more ideas and learning about architecture. I am very glad that I went to talk to Erin during the spring and learned about this opportunity. I will cherish and remember the openness and kindness of the German people. Thanks!”