IT University Travel Report

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Host University: ETH Zurich

Study Programme at IT University: MSc Software Development Advance Computing

Exchange Agreement or Study Abroad: Study Abroad

Courses studied abroad: Learning and Intelligent Systems, Computational Intelligence, Web Engineering, Ubiquitous Computing, Distributed Computing, Seminar in Distributed Computing

Exchange Period: 3\textsuperscript{rd} semester, Spring 2015

Your stay abroad

What was it like to study at ETH Zurich (including choice of courses, academic level, social life at campus)?

It was a privilege to study at one of the best universities in the world. Currently ETH is in the top 10 university rankings and number 3 just after Berkley and MIT when it comes to Computer Science. With a funding of over a billion euros a year it provides a great campus experience, infrastructure and laboratories as well as world class teaching. Most of the courses I attended were pretty big, some of them were above 100 people and were held in large auditoriums. The focus of most of my courses was in artificial intelligence, algorithms and machine learning. I would have to say that the academic level of all of my courses was really high and people without a strong mathematics and statistics background found it very hard to follow the lectures. The teaching had a very nice blend of theory and practice and required a lot of time and effort as we often had a lot of equations to solve, research papers to read and understand and programing assignments implementing some of the ideas we learned in class. All of the assignments in every single one of the subjects I took were competitive, meaning that you are compared to the results of your fellow colleagues and your grade depends on how good other people are (which usually means you really need to spend a lot of time and get decent results in order to even pass the minimum). For example in the course Computational
Intelligence we learned about 3 major problems in machine learning that use matrix factorization techniques to be solved: Inpainting, Image Compression, Collaborative filtering. We were asked to pick one of these topics and create an innovative solution and write a research paper about it which was then published in the Google Scholar library. Our team picked Collaborative filtering and worked closely with Recommender Systems. To be a bit more specific we used the Netflix dataset and measured our results against other teams that also picked the same topic as us as well as against the highest scoring solutions in the world. A nice twist was that we were allowed to execute some of our algorithms on a super computer hosted at ETH which is a once in a lifetime opportunity. In general ETH mainly focuses on academia and students are encouraged to develop their respective fields by creating new solutions to already existing problems. Another course that I took was Learning and Intelligent Systems where we fundamentally learned about most of the state of the art algorithms in both supervised and unsupervised learning in machine learning. Usually we will go through the theory in class to understand how things work mathematically and were asked to solve numerous mathematical problems and create algorithms to solve specific real life problems afterwards.

I would like to point out that exams at ETH were very serious and difficult to pass. It is a normal thing to spend a month studying for an exam and not pass it. The level that they require you to possess to pass an exam is very high and often you have a very short amount of time to do a large amount of tasks. For example in one of my exams we had an hour and a half to solve a 20 page exam that was all equations and even a slight distraction means your chances of passing are lowered.

ETH has many campuses and faculties all around Zurich. They are easily reachable by the ETH Link which is a bus line only for ETH students that can be used for free. When it comes to food, each faculty has a mensa that offers a specific type of food. For example you can choose between Italian food, Asian, Vegetarian etc (a fun fact is that all people from the faculty of Mathematics and Informatics had free coffee ;)). The food there was a lot cheaper compared to prices in restaurants. There is also a bar, numerous libraries, study places, cafes and the possibility to do sports for free (you can pick between 50 different types of sports). I personally did a lot of swimming and went regularly to the gym which was very well equipped. Furthermore there were many conferences and workshops organized at ETH which we could attend for free. I attended conferences held by Google, JetBrains, Evernote and Dropbox.

What was your initial motivation for going abroad and did your stay meet your expectations?

I wanted to see how I will perform at one of the best universities in the world and this was a perfect opportunity to do that. Furthermore I wanted to change the scenery and experience a new culture. I have to say that my stay exceeded my expectations. ETH is a phenomenal institution, I was lectured by some of the best professors in the world in their respective fields. Furthermore I met in person 2 Nobel laureates which was an unforgettable experience for sure. I was competing with some of the brightest young minds of our generation and tackled difficult problems that contribute to society. Zurich is a very structured, compact and beautiful city. Fresh air, mountains everywhere, crystal clear water, a huge lake in the middle of the city, fast public transport and cheap chocolate are just a few of the great things about Zurich.
Please describe what you got out of your stay, both personally and academically, and how do you expect it to contribute to your further studies?

Academically I improved both my theoretical knowledge and practical experience. I fell in love with the field of machine learning and I am considering making a PhD in the field after I finish my MSc degree. I made contacts with many smart and successful people and was able to learn from some of the brightest minds in the world. I immensely improved my technical skills, concentration, problem solving ability and the ability to work under pressure.

Personally, I changed my view of what I want to continue doing in my life and learned a lot about many different cultures as I made friends with people from the US, Canada, China, Germany, Italy and Switzerland.

Arranging your stay

Please give a short description of the process of arranging your stay:

It was a lot easier than I thought initially. After filling in the documentation required by ITU, my application was accepted by ETH and they offered me a room to stay which I accepted. The room was cheap for Zurich standards and had everything that a student needs (it was already furnished and all bills were included in the price). Just for the record I paid around 530 swiss franks for accommodation which is more or less 530 euro per month. I was also required to fill in a few forms by ETH but that was very straightforward and had to only be uploaded online. The pre-approval took some time but that was more or less it. I got all of my courses accepted by ITU, I got my accommodation sorted out so I just had to focus on studying for the most part of my stay.

What resources did you find helpful in planning your stay and which people did you use (if any)?

Rikke Ustrup (rius@itu.dk) helped me a lot by providing me with detailed information regarding the application procedures and she also contacted me with people that made an exchange at ETH previously. Furthermore ETH has a very helpful guide for exchange students that outlines all of the procedures you need to do when you arrive in Zurich.

How did you arrange practicalities such as accommodation?

As I mentioned before I was offered a room by ETH. The room was 5 minutes by foot from all of the faculties that I had lectures in which was ideal.

Expenses and Financing

All in all, Zurich is a very expensive city to live in. Compared to Copenhagen I would say that it is around 15-20% more expensive. Accommodation is definitely more expensive. Groceries are
comparable to prices in CPH with the exception of meat which is ridiculously expensive in Zurich. Public transport is also comparable to CPH.

Did you apply for scholarships and would you recommend any ones in particular?

No I did not apply for scholarships besides the scholarship I was awarded by ETH (around 2500 euro for my whole stay) which is awarded to all exchange students. Something to note however is that they require you to pass 20 ECTS to get the scholarship. Fundamentally you get the scholarship when you arrive and if you don’t pass 20 ECTS you will be asked to give some of the money back based on the amount of ECTS you manage to pass.

Recommendations for other students:

If you want to challenge yourself both personally and academically ETH is a perfect fit for you. Be prepared for the highly mathematical nature of most of the subjects. Be very careful when you pick your courses as it can be very difficult to cope with more than 2-3 highly mathematical subjects. On average students pass 20 ECTS per semester at ETH so be prepared for a real challenge and don’t worry if you fail a course because as I said previously it is normal to spend weeks studying for 1 exam and fail it. Be prepared for sleepless nights as often you will have a lot of projects at the same time. Also be prepared to put 4-5 hours a day (this does not include lectures and exercises) to better grasp the theory (falling even a bit behind can be devastating).

Now some tips outside of the studying filed – go to a chocolate factory, if you like skiing there are numerous organized trips during weekends. Sign up for the ESN events as you will meet a lot of interesting people and travel a bit around Switzerland. In most ETH building there is a room for relaxation that usually has an Xbox, Playstation, Fussball, pool table, beer machines and even arcades.