

EU-Canada Mobility Program Experience Report

By Cam Mazurek

Upon hearing about the exchange program titled “Control and Coordination of Multi-agent Robotic Systems” I was immediately excited as it involved the opportunity to study in Europe. Excited as I was, it wasn’t easy to make the decision to move away from home for the first time and live in a country I knew nothing about. I had to Google Budapest to find out which country it was in! I eventually realized that this was potentially the opportunity of my life time and hesitated no longer. After months of planning and waiting, finally on January 21st, 2010, I arrived on Hungarian soil and my adventure started.



The City



I was obviously very excited. Budapest was so very different from any place I had ever been. I was fascinated by the large yellow trams that kept buzzing by every 2 minutes, and the large numbers of people who would flood in and out of the doors as it came to brief stops. The old architecture captivated my attention immediately as well, the buildings all so old and intricately designed. I will never forget the first night we arrived and went out into the cold, damp winter evening and ate at Burger King because we

weren’t daring enough to venture into one of the many privately owned shops or restaurants that lined the busy streets. Cold being a matter of perspective, of course; Canada is much colder on the warmest winter days.

Over my stay in Budapest I fell in love with the city. I visited all the major sites and enjoyed the action-packed life of a student living in Budapest’s lively downtown. I made dozens of new friends, both locals and other exchange students on an experience of their own. The European student organization Erasmus has a group at the Budapest University of Technology and Economics, where we studied, and they organized several events for all of us exchange students to enjoy together. Some of these were: an underground caving expedition,





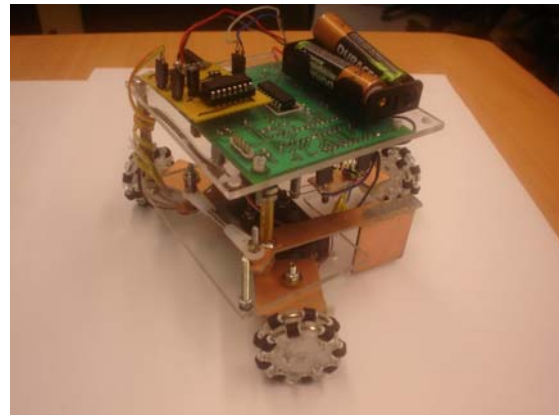
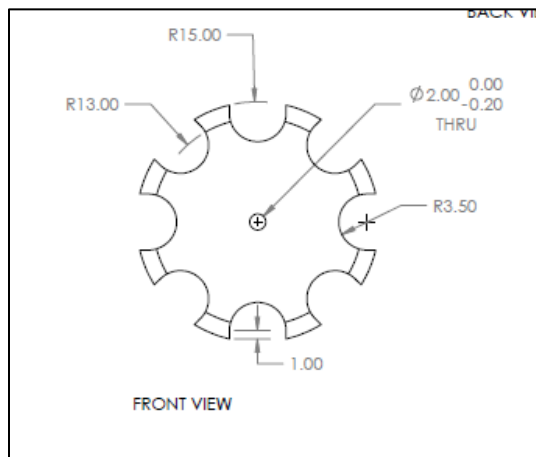
an international dinner, pub evenings, museum visits, and my favourite, the weekend trip to Munich. I am very thankful that BME had this program for all of us to enjoy.

During the last 2 weeks of my stay in Hungary, my girlfriend and some friends came to visit me in my flat in Budapest. I had so much fun showing them the city and as much of what I experienced. The combination of living on my own, in a new and foreign city,

studying interesting new material, and meeting so many great people was something that I was very excited to show off to my friends.

The Project

Our project required us to convert a current 2-wheel differential drive hockey playing robot into a near-identical robot with omnidirectional drive. The project was as open-ended as making it work while changing as little of the old robot as possible. Specifically, dimensions of the robot, the motors used, and the hockey stick mechanism would ideally stay the same.



After a couple weeks of familiarizing ourselves with the project and omnidirectional research, we began design of our own homemade omnidirectional wheel. This was very enjoyable because it gave us an opportunity to design a part from scratch in CAD, and have it manufactured on a large scale with a CNC machine after prototyping and verification. It was like a real-world engineering process and so the experience was very valuable.

After the wheels were assembled, we oriented them around the robot so that there were 3 wheels located 60° apart. Here we designed brackets to mount the wheel and motor

assemblies on the bottom of the current robot. The challenge was mounting the wheels around the other components of the robot so that there were no interferences. I very much enjoyed working on this project. It was very satisfying to have completed the project goal of producing a working omnidirectional version of the current hockey playing robots. I look forward to seeing our robot's performance after the computer programmers have designed the AI control of it, utilizing its omnidirectional capabilities.

The Traveling:

After I was finished school in the middle of May, my girlfriend and I backpacked around Europe for a month together and saw so many awesome cities. My girlfriend went home at the beginning of June, and I stayed and met up with a friend in Germany. We continued traveling Europe until the end of the month. One of my favourite countries was Germany, for its beer-drinking Schnitzel-eating lifestyle. It was also really cool to travel to London and for the first time in months stay in an English-speaking country. I was surprised at how accustomed to hearing foreign languages I had become. Italy was gorgeous, with our day-trip into Tuscany visiting the town of Siena, the Tower of Pisa, San Gimignano, and an organic farm and vineyard being one of my most enjoyable days. To keep this section manageable for the reader I will only provide a photo from each of the cities following my closing remarks, although I feel like I could write an entire book.

Conclusion:



My decision to join the EU-Canada mobility program was the best decision I have made. It provided me with the opportunity to learn about relevant engineering material, practice the engineering design process, live on my own in an amazing and different city, travel Europe extensively, truly having the times of my life throughout. I would like to thank Dr. Istvan Harmati and Dr. Nariman Sepehri for being my advisor's throughout this unforgettable experience, and the EU-Canada Mobility program for providing us with such great opportunity. I would recommend this program to anyone fortunate enough to be able to join.

Egészségedre!



1 Munich, Germany



2 Romania



3 Royal Palace, Vienna, Austria



4 Canals, Venice, Italy



5 Colosseum, Rome Italy



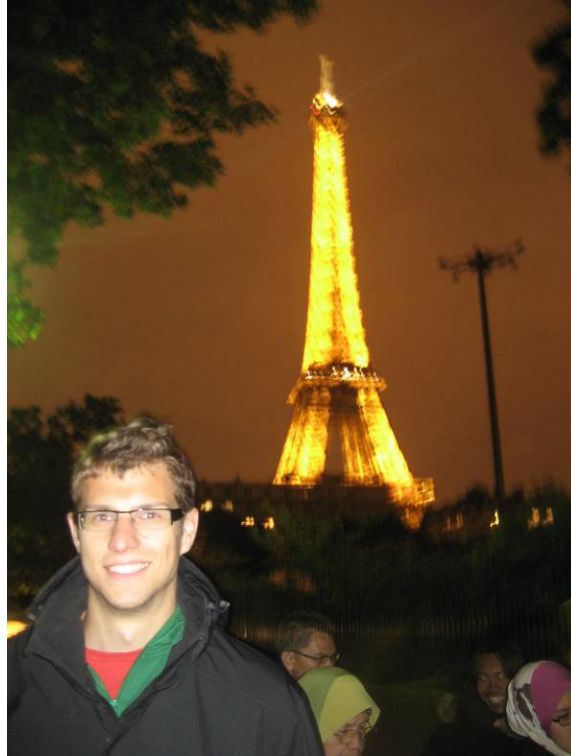
6 Leaning Tower of Pisa, Italy



7 A Patriotic Street in Zurich, Switzerland



8 Medieval Festival, Lyon, France



9 Eiffel Tower, Paris, France



10 Restored Central Square, Frankfurt, Germany



11 Olfen, Odenwald, Germany



12 The Dom, Cologne, Germany



13 Belgium Fries (Apparently where French Fries Started)



14 Canals, Amsterdam, The Netherlands



15 Ferry to London



16 Big Ben, London, England with Walking Tour Group