

MacRobertson Travel Scholarship Report

About Me

My name is Hayley Russell and I am originally from Livingston but live in Glasgow whilst I study for a PhD in chemistry from the University of Strathclyde. I am currently in the 3rd year of my PhD and have recently returned from a research visit to the University of British Columbia in Vancouver, Canada. The visit was funded by a MacRobertson travel scholarship which I received from the University of Glasgow and the University of Strathclyde. My PhD focuses on applying machine learning and artificial intelligence to predict the outcomes of chemical reactions.



Hiking to Upper Joffree Lake, British Columbia, Canada.

Why Did You Apply For The Travel Scholarship?

My PhD project currently involves applying machine learning to chemistry problems to predict reaction yield. Chemical reactions are developed through trial-and-error screening as small changes in reaction conditions can have dramatic and unexpected effects on the experimental outcome. Machine learning (ML) can help solve this problem by providing a predictive platform that identifies relationships between the reaction parameters and the experimental outcome. Professor Jolene Reid's group at the University of British Columbia currently study machine learning to predict the stereochemical outcomes of reactions which has a different set of associated challenges. This scholarship seemed like a fantastic opportunity to expand upon the knowledge I've developed.



The Chemistry Department at the University of British Columbia

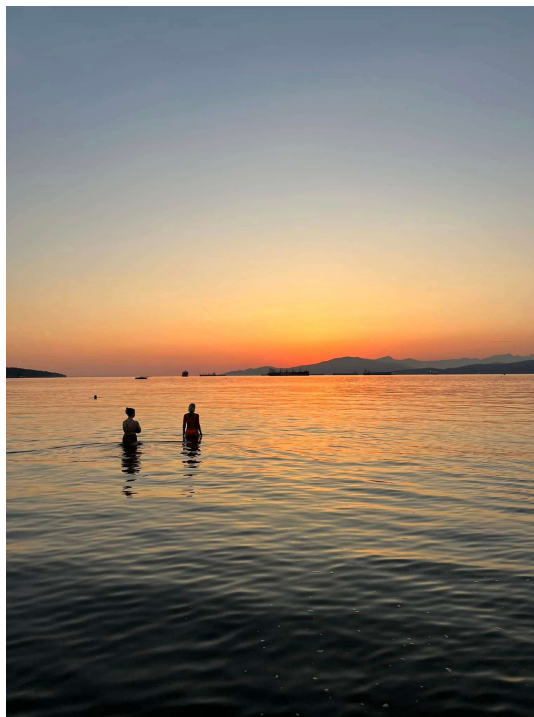


This placement also gave me the opportunity to network professionally, UBC has 21 academics working in the field of physical and theoretical chemistry, in contrast my home university only has two, of whom one is a supervisor for my project. Professor Reid's research group has a diverse range of chemistry expertise, ranging from synthetic organic chemistry, mechanistic studies, and computational chemistry to data science. The group currently consists of two postdoctoral researchers, five graduate students, and one undergraduate, from diverse backgrounds. Accordingly, this gave me the opportunity to work with skilled researchers at different stages of their career and in different fields. In all, this developed my scientific network outside of my home country, maximizing my future potential to collaborate across a broader spectrum of research laboratories, and groups.

Details of my Visit

I travelled to Vancouver in April 2023 and stayed in Canada until mid-June 2023. During my visit I was working on a research project using machine learning to predict the outcome of reactions catalysed by a type of catalyst known as IDPIs. Fortunately, we managed to get some good results out of this project, and we are hoping to publish the results soon in a paper.

During this time, I was studying at UBC, but also had the opportunities to travel around different parts of the US and Canada. I was able to visit Alberta and tick Banff National Park off my bucket list which was an incredible experience. Vancouver is approximately 4 hours from Seattle by train, so I was also able to visit there. It was really easy to travel to and the city is beautiful. I have some family who live in the greater Toronto area. After I finished my placement in Vancouver, I went to visit them for two weeks before returning to the UK.



At the top of 'The Chief', Squamish BC. Sunset at Kitsilano Beach, Vancouver BC.

The University of British Columbia has a research exchange program called Visiting International Research Students (VIRS). As part of this I had to attend an intro meeting which allowed me to meet other visiting international students. The university also runs a WhatsApp group for visiting students. This allowed me to make great friends and I got to do some awesome things with the people I met through this programme. UBC has lots of beaches around the campus and I have fond memories of chilling there after work with the other VIRS students. Swimming in the cold sea optional!

Impact of the Travel Scholarship

The scholarship has been excellent for me academically. I was able to make new connections, learn new skills and work on a project that is hopefully going to lead to a publication within the next couple of months. I now have new techniques I can use for my research back at Strathclyde which will lead to better project results for my PhD overall.

Personally, this placement was an amazing experience. I got to travel to a beautiful part of the world, make new friends from all over the world and work with some of the leaders in my field.

Acknowledgements

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