



Luuk Earl

MRes Translational Quantum Technology student

Luuk completed a Physics undergraduate degree with an integrated masters year (MSci) at the University of Birmingham from 2012-2016. In his fourth year, he was involved in project work in the Cold Atoms group, and as a result, developed a strong interest in cold atoms research and more specifically, the UK Quantum Hubs, drawn by the focus on developing emerging quantum technologies into useable products.

Why did you carry on to do an MRes after completing your degree?

I knew I wanted to continue with further study and research into the area of quantum technologies by doing a PhD. The MRes course offered by the Quantum Technology Hub for Sensors and Metrology seemed like the perfect route for me as it allowed development and learning of skills not covered in my Physics degree.

Tell me more about the first year of your MRes degree.

The first part of the MRes year took place at the Quantum Technology Hub, University of Birmingham. As part of this year, I undertook lecture modules that would complement my current skills. As I had a background in atomic physics, I decided to focus on electronic and computer control for cold atoms experiments.

Also, as part of this year, all the MRes students participated in a group project to demonstrate the use of quantum technology on a highly mobile platform. The group decided to build a magneto-optical trap, which is the starting point for sensors based on cold atoms, on an unmanned aerial vehicle (UAV).

The project demonstrated the readiness of quantum sensors to be translated into a commercial space. We learnt a lot of useful skills during the project, both in the fundamental physics and the systems engineering of developing a mobile and integrated sensor.

As part of the MRes degree, students are given the opportunity to undertake a placement at a collaborating industrial partner. Can you describe how this experience helped your learning?

I undertook my placement at Gooch & Housego, a fibre laser company based in Torquay. I spent five months there in total, during the academic summer term and summer holiday, contributing to work on funded projects with the collaborative universities and companies. A large proportion of my work was on developing a compact and turn-key laser locking system using digital electronics.

The placement allowed me to develop the skills and knowledge I had acquired during the first part of the MRes degree into relevant applications. I learned new skills and techniques from experts in fibre lasers. The industrial placement also helped me gain a thorough and invaluable understanding of research in a company setting.