

## **UROP: Undergraduate Research Opportunities Programme**

### **A Personal Perspective by Yunzhou Xia**

Yunzhou had just completed the second year in Physics, and embarked on an 8-week UROP research experience in the summer of 2015 under the supervision of Dr Apostolos Voulgarakis (Atmospheric group within the Department of Physics).

#### **Placement Title: Compute and Analyse the Correlation between O<sub>3</sub> and CO in the Troposphere**

I had always been keen on pursuing an academic career, but at the same time uncertain whether to continue immediately after my undergraduate degree or to gain some experience in industry first. In order to have a taste of what real research was like, I decided to apply for a UROP placement.

I started my search comparatively late, in January/February of the second term. Although I had a couple of prospective research fields in mind, I was indecisive of which I would be interested in spending a good 8-week on, as I had loved all the courses I had had so far. Therefore, I decided to email and to meet potential supervisors in person. Dr Voulgarakis was the first to reply and a meeting was arranged.

At the end of the meeting, I had a better understanding of what the project was about and it captured my attention immediately (although the topic was changed after another meeting just before the actual placement commenced). I was astonished at Dr Voulgarakis's overwhelming friendliness, profound knowledge in his field (which turned out to be very broad as well), and his experience and effort being put into the supervision of past UROP students. So it was during that initial meeting that I decided without hesitation, to carry out a placement under Dr Voulgarakis. Thereafter, with the help from him, I was privileged to be given the Imperial College UROP award.

Before the project started, Dr Voulgaris recommended a few books and papers to read as a preparation, which was an important step to get familiar with the field and the latest research. The project involved mainly computing and data analysis, which were the two areas I wanted to improve my abilities in.

On the first day, I was welcomed by Dr Voulgarakis and his fellow PhD students, as it was beneficial to get to know everyone in the group. During the first week, I spent my time mainly getting the required software ready and reading further about the field. The following week was spent on practising the coding languages being used, Linux and idl. Since I had had training in Python as a compulsory part of my degree, it was relatively easy to learn these new languages. Then the rest of the project was on utilizing these languages as a tool to understand the correlation between O<sub>3</sub> and CO.

Throughout the project I was given adequate support from my supervisor, while it being not too much to constrain my independent thinking. At first we had one-to-one meetings almost every week to guide me with the proper way of scientific reasoning, but the frequency decreased as the project went on. I was also introduced into group meetings, where I learnt the research areas of those PhD students, and also delivered my progress to people of higher levels. Participation in these meetings taught me the significance of the ability to convey my own ideas, and at the same time to learn from other related fields because it would be useful at a later stage. Having my own desk in the office enabled me to fully immerse into the life of a research student. Everyone within the group was equipped with different skills and knowledge, and that's what makes up a strong team. We worked hard during the day. Outside the office, we also shared our interests, as being artistic or sporty. I believe that within the group it has built up an unbreakable bond and cohesion.

In summary, I have gained a tremendous amount from this UROP experience, both academically and socially. I appreciate the work from everyone who has been involved in maintaining the progress and popularity of UROP, and I definitely will recommend anyone who's interested in scientific research to go for this!