

## **George Morgan**

Undergraduate, Year 2 in 2019-20, MEng Materials Science and Engineering, Dept of Materials

**UROP: Summer 2020** (undertaken in the Dept of Materials)

**A perspective:** Light Stimulated Actuators

I arrived at the idea of doing a UROP when I heard about what they are and the interesting things that a student is able to do during a UROP. Being part of an active research group and working with academics during a UROP offers many opportunities to learn new things and enables you to expand your skill set. Additionally, I wanted to complete a UROP in order to get a sense of what a PhD may involve and find out if I would enjoy a PhD.

My UROP came around by asking the academic which I wanted to do a research project with if they were able to take on any UROP projects in the summer. Luckily for me they were and so we continued to discuss potential research project ideas. The next stage was to then apply for funding through the college application process. In May, I heard that I was successful in my application and received funding from the Engineering and Physical Sciences Research Council for my UROP project. Of course, I was delighted by this news and I then contacted my supervisor to discuss my project. Around this time, college had announced its closure and so I was unsure as to whether my UROP would be able to go ahead as normal or not. Luckily, my supervisor informed me that I would be undertaking a remote UROP and so I was able to continue with my project. Naturally, the contents of the project were going to be slightly different to that originally planned, but nonetheless very similar.

Undertaking my UROP allowed me to develop and build upon a wide range of skills. Firstly, UROP work is a big change to typical university work and so this required for me to adapt quickly to this way of working. There were no weekly deadlines, particular tasks to complete or lots of fellow peers to speak to. It was a case of assigning deadlines for myself and thinking of little tasks to do in order to move towards the final objective. Because of this, I was able to experience a much more relaxed way of working, in terms of the lack of deadlines and tasks, whilst always striving towards the main goal. With new opportunities such as this UROP, there is always the chance to build upon time management and communication skills. Perhaps more important in this remote climate, it was crucial that I was able to communicate effectively to my supervisor and also manage my time well. This relaxed working nature of my UROP project could enable me to become sluggish in my work ethic and struggle to complete particular tasks. Therefore, it was vital to have a clear plan for each day during the project and as a consequence I was able to build and enhance my time management skills.

A large part of my UROP project was reading lots of literature. With this, I am now much more comfortable with reading a scientific paper and most importantly I am much more confident in questioning the information within the literature - a skill I picked up during my UROP. This will be valuable to the rest of my course, especially during my literature review project and final year project, as I will no longer believe everything that is published, which I fell for previously. A big skill that I acquired during my project was to be constantly questioning the literature. Additionally, the project inspired me to look into PhD opportunities and think more seriously about applying for a PhD. A UROP is only an insight into academia and I finished the UROP wanting to continue research.

Thankfully, the pandemic only played a little part in my UROP object. Unlike typical UROPs, I was unable to go into the lab because of the pandemic. I conducted the UROP from home and it was completely remote. Due to the Government guidelines and regulations, it was impossible at first and now extremely difficult to fit people into the lab and so I was extremely grateful that the project could still take place given the circumstances, albeit remote. Fortunately, I did gain

some personal interaction as I was able to attend the weekly group meetings via Teams. At these group meetings, the research group discussed journal papers as part of 'Journal Club' or one of the group members would present a talk discussing their work. Towards the end of my project, I presented my work to the group. This involved a 15-minute talk where I outlined the journey of my UROP project and how it unfolded. As I gained some good results from the project, I was pleased to present these to the group.

At the start of my application, my supervisor said that the scope of the project would be to contribute to the understanding of a particular mechanism - the light-stimulated actuation of  $\text{Ni}(\text{OH})_2$  photoactuators. I am now proud to say that I did contribute to the understanding of the mechanism and additionally, I have contributed to a potential publication on the systems studied.

I extremely enjoyed my UROP project and I would encourage anyone who is interested in science and research to think about undertaking a UROP!