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UROP: Summer 2019

Project: Comparing Interpolation and Correction Methods for Dual Encoding Velocity 4D PC-MRI Data

How I secured and undertook my research experience under the supervision of Prof Xiao Yun Xu, Dept of Chemical Engineering

I came to do my UROP after expressing an interest in computational fluid dynamics to my personal tutor. She suggested that I get in contact with Prof. Yun Xu as the research group she leads focusses on fluid processes in the body. As a chemical engineer this seemed like an unconventional application of my engineering skills that I would not encounter within the course and so I was very excited to work with the group (my day-to-day supervisor was Dr Selene Pirola).

Preparation

To prepare for my UROP I had to get up to scratch with some basic understanding of the physiology of the human heart and with the software tools I would need to use in order to undertake the work (some of which I had no previous experience with). I also had to teach myself about the medical imaging technology I would be working with through the project.

The UROP itself

Through the UROP I gained technical skills (e.g. gained experience in CFD post-processing techniques) relevant to the career path I would like to follow in future. Additionally, I understood better the process of research work and how to self-motivate whilst answering a complex question over a longer period. I presented my research to Prof Xu's group which was well-received and helped develop presentation skills. The results of my research allowed me to tentatively recommend the processing method to the research group.

Looking to the future

As I would like to work in a fluid dynamics or simulation-related field the technical skills I gained were directly applicable to my future career path. I have already used some of the image-processing and computer vision skills gained here in my third year labs. The UROP experience has made me seriously consider a PhD after I graduate.

I am very grateful for this opportunity and to the support of both Dr Selene Pirola and Prof Xu.