

## **1966 Mill Lane Award**

### **Tom Andersson (Engineering) – Cambridge, Summer 2016**

For my summer I stayed in Cambridge for 10 weeks to complete a placement with the Use Less Group in the Engineering Department. The Use Less Group is an academic team committed to reducing material wastage in the UK, for example by producing novel sheet metal-forming techniques. This placement was made far more feasible for me by a generous grant from the 1966 Mill Lane group. My task was to work on the design and construction of a giant (8 metres wide) metal sculpture of a peacock – certainly not your typical research internship! The purpose of the sculpture is to be displayed on a temporary bridge between the Engineering Department and Peterhouse when the International Conference on the Technology of Plasticity is held in Cambridge in September 2017.

The process was a team effort but I was the sole contributor working full-time on the project – I was blessed to be in an office full of kind and welcoming academics who were always happy to offer their expertise to help me to make progress. In order to produce results, I needed to contend with the requests of my supervisor and the limitations of what could realistically be made in the Engineering Department. There were issues with what materials, machines and technicians were available. Creatively dealing with the pulling factors of demands and restrictions while producing a successful end product is fundamental to good engineering, and is something I feel I practiced and developed during my placement.

I gained experience with multiple computer softwares, such as Computer Aided Design (CAD) and MATLAB, which was rewarding because they appear in both the Engineering Tripos here in Cambridge and in industry-level engineering. I used CAD to make a virtual 3D model of the sculpture and to generate technical drawings (a process central to accurate communication in an engineering workplace) so that components of my design could be constructed. I learned about various engineering processes which will be good preparation for the Part IB Materials course.

The project of building the sculpture is a mammoth task and unfortunately I'm not able to say it was finished by the end of my placement. I was, however, commended by those in the team for what stage I had left the project at, given the open-ended nature of the problem I began with. I had developed and experimented with ways in which the sculpture could feasibly be created in the Engineering Department, in part by making prototypes and scale models of various elements of the sculpture. In this regard I had established the fundamentals by which the so-called 'peacock committee' should be able to finish the sculpture in time for the conference.

I am hugely grateful to the 1966 Mill Lane Group for the grant they gave me. Without it, I would likely have chosen to work a much more monotonous job at home in order to be in a good financial position for the next academic year, and would have missed out on this fantastic opportunity. I finished my placement enthused about engineering and eager to put into practice the things I learned while staying in Cambridge over the summer.