



**Student:** Ilya Antonov  
Royal Holloway University  
of London

**Placement:** National  
Physical Laboratory

**Role:** Programming a  
Field Programmable Array  
(FPGA)

*“As a more general skill, I improved on setting realistic targets that would generate functioning results within the short 2- month placement.”*

### **What is the subject of your PhD?**

Quantum optics on artificial atoms

### **Describe a typical day on placement**

I chose to start at 8am dealing with time sheets and emails until 8.30. A trip upstairs and I was in the lab with a PC, signal-generating/monitoring equipment and the FPGA board I was to program. I would write up three points that I hoped to achieve on the day and begin solving them one by one, with tasks ranging from soldering wires, to reworking code for better signal generation on the FPGA. I would rarely get past the first point before going off on a tangent of new ideas that naturally evolved. It would be 5-6pm before I knew it, when I would travel home to recover from the programming overload and start again the next day.

### **What skills and knowledge do you feel you have learned during the placement?**

There was the core technical knowledge of writing VHDL code and understanding the functioning of FPGAs that I developed during the placement. As a more general skill, I improved on setting realistic targets that would generate functioning results within the short 2-month placement. As I quote from a science journal - “80% is more than enough for employers”. I learnt to identify jobs that were taking too long without much progress and dynamically rework my schedule independently.

### **How do you think doing a placement has benefited you for the future?**

My PhD is about fast signal processing in quantum optics experiments and this placement has given me direct technical experience in this field. In addition the process of rapid learning and integration into an unknown field (of FPGA design in this case) is always a beneficial experience that pushes you out of your natural environment giving a new perspective when you return to it.

### **What advice would you give to a PGR student who might be interested in seeking a placement?**

If you are doing a PhD it's good to talk it through with your supervisor to avoid complications later on. Be prepared to be out of your depth during the first few weeks.

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