

**Project 18/43:** High Speed Communication Electronics for Optical Communication Systems

**Company:** Archangel Lightworks

**Supervisor:** Owain Pryce-Jones

**Location:** Harwell, Oxfordshire

**Company Description:**

Archangel Lightworks is a start-up specialised in space laser communications based in Harwell Space Campus, Oxfordshire. Founded in mid-2017, we have secured long-term funding and successfully demonstrated several novel prototypes related to laser transmission and efficient perpendicular solar concentration. Our mission is to make 10x more data download possible to meet the demand from the growing satellites market, especially smallsats, delivering more data from the earth orbit to the ground at higher speed.

**Project Description:**

The successful candidate will work as part of a project to develop an end to end optical communications solution for LEO Satellites. The project will involve a number of different areas of work including but not limited to simulation, control systems, testing/experimentation (optical, mechanical, electrical, thermal), CFD and optical communications/photonics. The intern will primarily be working on high speed communication electronics for optical communication applications.

The internship framework is flexible therefore the intern will have opportunities to gain a range of skills relating to the development and design of space communications systems.

**Applicant Specification:**

The project requires hands on involvement from an exceptional candidate with a strong interest in developing satellite communication architectures. The ideal candidate will be a proactive individual with necessary technical abilities and desire to work in the space industry.

**Minimum Requirements:**

At least an upper second-class degree (obtained or predicted) in a relevant engineering, scientific or mathematical discipline with experience in working within a team on a project with deliverables. It is essential that the candidate can make meaningful contributions, take ownership of assigned tasks and deliver them within the required timeframe.

The successful applicant must have some practical (job, university project/lab, internship) experience/knowledge working with:

- Communications electronics; and

At least one of the following areas:

- Photodetectors
- FPGAs
- Micro controllers
- Error correction methods
- Networking protocols
- Framing
- Fibre optic communication
- Planar lightwave circuitry
- CAN, I2C, SPI interfaces

**Preferred Additional Requirements:**

Evidence of knowledge/experience in working the following areas would be advantageous but not essential:

- Optical communications
- Writing test result documents
- Matlab, Python, C/C++
- Writing test procedures
- Graphical user interface development
- Raspberry Pi/Arduino projects
- High altitude ballooning experience

**Further details:**

8 weeks minimum fixed term contract to be agreed with successful candidate but nominally with a start date around 18 June 2018, when the SPIN Induction Day will be held at the Satellite Applications Catapult, Harwell. Salary is £1,500 per calendar month.

**Closing Date for Applications: 17:00, Friday 8 June, 2018**

Applications should be made through the online form attaching a CV, before the closing date. Please note that elements of the form left incomplete will be deemed to render the application ineligible. They will be checked for eligibility and forwarded to the employer.

**Apply here:** <https://sa.catapult.org.uk/people/space-placements-industry-spin/>