# Reed Roberts

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## EDUCATION

**University of Manchester** — Manchester, England
*BSc. Physics With Honours (2:2); Specialized in computational physics* — *2014 – 2017*

- **Relevant Courses**: Computing and Data Analysis, 1st; Programming for Physicists, 1st; Computational Physics, 2:1; Object Oriented Programming, 1st; Lab Work (All Years), 1st

**ACS International School** — Surrey, England
*International Baccalaureate; Higher: Math, Physics, Chemistry; Lower: English, History, Japanese* — *2012 – 2013*

## EXPERIENCE

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**4Sight Imaging** — Manchester, England
*Software Engineer* — *2017 - Present*

- **Machine Learning**: Introduced and implemented CNN technologies like YOLO for vehicle type and vehicle colour classification. Created data pipelines using the COCO API, DVLA databases, and our own internal API to quickly create, test, deploy, and iterate new classifiers. Experience with pyTorch and Darknet frameworks.
- **Computer Vision**: Optimized novel high-performance OCR aglorithms for ANPR. Implemented optical flow to measure and quantify traffic density. Familiarity with tracking algorithms, color theory, and image encoding as well as in-depth knowledge of optical physics. Heavy-use of OpenCV in both C++ and Python.
- **Self-directed Research**: Lead the company's research and development to keep up-to-date with cutting edge machine learning and computer vision technology. Self-directed data collection, analysis and development of novel algorithms.
- **Product Development**: Designed and engineered new software products from the ground up from research to sale. Wrote enterprise level code in C++ and Python.
- **Core Development Methodology**: Experience including OOP, design patterns, systems design, databases, version control, DevOps and agile methodology.

**Oxford Department of Plant Sciences** — Oxford, England
*Internship - Computational Biology* — *Summer 2015*

- **Software Project**: Developed a program named OrthoFiller. This project dealt with developing software for the bioinformatics community. This internship provided valuable experience with bioinformatics, the Python programming language and software projects in an academic setting.

**Petrotel** — Dallas, USA
*Internship - Front End Development* — *Summer 2013*

- **Web Design**: Worked on bug fixing and editing the Petrotel website, which involved the use of HTML, CSS, and Javascript. Assisted the company in its transition to Google Cloud Services.

## PERSONAL

**University of Manchester Gaming Society** — Manchester, England
*President* — *2015 - 2017*

- **Leadership**: Lead and grew one of the largest student societies at the University of Manchester with over 300 active members. Managed a team of 10 volunteers to organize weekly events. Under my management we secured financing and sponsorship, and organized events with over one thousand students in attendance.
- **Public Speaking**: Personally wrote and presented successful funding requests to large groups.

- **Interests**: Econophysics, Astrophotography, Dungeons and Dragons, Fitness, Cooking

## PROJECTS

- **Electronic Design**: Designed, built, and tested an audio amplifier with a typical AB push-pull stage.
- **Electronic Simulation**: Designed a C++ program for the efficient simulation of complicated AC circuits.
- **Data Analysis**: Assisted in writing software in Python and Matlab to quickly perform chi-squared analysis of a dataset for the University of Manchester Physics Department.

## PROGRAMMING SKILLS

- **Languages**: C++, Python, Javascript, SQL      **Technologies**: OpenCV, PyTorch, Darknet, PostgreSQL