Harriet Peel

PhD, MEng

About me

Robotics Engineer in an Impact Accelerator Role at the University of Manchester.

Programming Skills

- Python - 5 years
- GNU Bash/ Shell scripting - 5 years
- C++ - 3 years
- HTML, CSS, JavaScript - 2 years
- MEAN Stack (MongoDB, Express, Angular, Node) - 1 year
- GoLang - 1 year

Other Technical Skills

- Linux - 5 years
- Git - 5 years
- High Performance Computing - 5 years
- Docker - 3 years
- Continuous Integration (CI): GitHub Actions, Travis - 1 year
- Test Driven Development: PyTest, GoogleTest, ROStest - 1 year

Teaching

I am a trained Software Carpentry Instructor:

- Git
- Unix/Linux
- Python
- Computational best practices

During my PhD, I taught practical undergraduate modules in:

- Web technologies: HTML, CSS, JavaScript
- Robotics: Python, C++ , ROS

Communication Skills

- Working remotely - 2 years
- ClickUp (similar to Jira) for collaboration on projects - 1 year

Experience

2019- **Post-doctoral Researcher** — University of Manchester, funded by Sellafield Ltd.
in robotics and AI for nuclear decommissioning.

General Responsibilities :

- Meeting customers to discuss deployment scenarios and opportunities, identifying blockers to deployment and finding solutions.
- Increasing the Technology Readiness Level of projects for commercialisation and transferring this knowledge to the commercialisation partner.
- Iterate projects, with the feedback of the customer, to ensure security, safety and deployment standards are met.

Technical work:

- Planning, development, integration and testing software for multiple robotics projects.
- Management, maintenance and using Linux machines including virtual machines and headless images on robotic platforms.
- Developed an MEAN stack web app to allow non-specialist users to perform tasks, such as monitoring sensor feeds, data-collection and task-planning.
- Arranged GitHub access for the team and implemented a methodology that includes: TDD and CI using PyTest, GoogleTest, ROSTest and GitHub Actions and Docker. I use these tools to simulate the platform, isolate dependencies and test the software before deployment on the real system.

2015-2019 **Postgraduate Researcher (PhD)** — University of Leeds
in Robotics and AI for Civil Engineering applications.

- Applied state-of-the-art Deep Learning and computer vision methods to create a robotic platform that detected cracks in concrete infrastructure, using a wide range of open-source tools (Cafe, Keras, TensorFlow, Sci-kit learn).
- Trained AI models on the Leeds High performance computer (HPC).
- Worked with large datasets and automating the transfer and analysis of these datasets through command line tools, including on the HPC.

2015 **Internship -2 weeks** — 3DFlow , Italy

- Tested Structure from Motion software at a computer vision spin-off company.

2014 **Internship - 3 months** — BAE Systems, UK

- Worked with heads of department to find which tasks in an aircraft design were most dependent on other disciplines, and how to introduce modelling of aircraft systems using software.

Education

2015-2019 **PhD Robotics for Civil Engineering** — University of Leeds
- See *Postgraduate Researcher experience* above

2011-2015 **MEng (Hons) Aeronautical Engineering (1st class)** — University of Bristol
- Computational fluid dynamics in Fortran, C and MATLAB.

Outreach, events and other training

2019
- Scientific presentations at three international conferences (2016, 2017, 2019).

2018
- Organised a 24 hour Hackathon for undergraduates in FinTech.
- Became a qualified Software Carpentries Instructor.
- Participated in a communications master-class by Dr Maggie Aderin-Pollock.
- Gave industry presentations for the future role of robotics in construction.

2017
- Presented at the Royal Academy of Engineering Research Forum in London.
- Participated in Ada Lovelace inspired events to teach girls to program.
- Competed in the UKRAS Resilient Infrastructure Robotics Challenge.
- Took part in the ESPRC National Robotics Prototyping Workshop.

2016
- Attended the British Machine Vision Association (BVMA) summer school.