

# Christopher W. F. Parsonson

 [cwfpinson.github.io/](https://github.com/cwfpinson)  <https://github.com/cwfpinson>  
 [scholar.google.com/citations?user=2Vw7d64AAAAJ&hl](https://scholar.google.com/citations?user=2Vw7d64AAAAJ&hl)  [cwfpinson@gmail.com](mailto:cwfpinson@gmail.com)

## TECHNICAL SKILLS

Python, MATLAB, PyTorch, TensorFlow, DGL, PyTorch Geometric, W&B, Hydra, TensorBoard, Ray, RLlib, Gym, Pandas, NumPy, SciPy, Scikit-learn, PySCIOpt, CVXPY, PuLP, Jupyter, Neovim, VSCode, Git, Linux, tmux, Sphinx, Docker,  $\LaTeX$

## EDUCATION

**University College London (UCL), Ph.D.** 2019 — Present

*Thesis: 'Computer Network Optimisation with Artificial Intelligence and Optics', EEE Dept., Optical Networks Group*

- More than ten publications in leading AI/ML and networking outlets (AAAI, OFC, JLT, etc.)
- Outstanding reviewer award (top 10%) for ICML, NeurIPS reviewer
- Developed reinforcement learning/graph neural network/swarm/evolutionary algorithms for discrete optimisation
- Developed open source software package for custom reproducible network traffic generation

**University of Cambridge (Gonville & Caius College), M.Res.** 2018 — 2019

*Integrated Photonic & Electronic Systems Engineering, Distinction*

- Projects in (1) 3D computational holography for VR & AR displays (2) signal optimisation with swarm algorithms

**Imperial College London, M.Eng.** 2014 — 2018

*Materials Science and Engineering, First-Class Honours*

- Top 5% of class (out of 120 students), awarded Morgan Advanced Ceramics prize for academic excellence

## EXPERIENCE

**Visiting Researcher, The Alan Turing Institute, London** 2022

- Developed graph neural network and reinforcement learning algorithm for partitioning distributed deep learning jobs
- One paper under peer review
- Used Python, PyTorch, DGL, RLlib, Ray, Gym, Pandas, NumPy, SciPy, W&B, etc.

**Research Scientist Intern, InstaDeep Ltd., London** 2021 — 2022

- Developed graph neural network and reinforcement learning algorithm to solve NP-hard mixed integer linear programming problems exactly
- One paper published, one under peer review
- Implemented REINFORCE, DQN, and PPO reinforcement learning algorithms from scratch
- Used Python, PyTorch, PyTorch Geometric, Gym, Pandas, NumPy, PySCIOpt, CVXPY, PuLP, etc.

**ConceptionX Deep Tech Startup Programme, U.K.** 2021 — 2022

- Explored commercial potential of deep geometric learning in logistics and information security domains
- One of 16 teams selected (from 70+ initial groups) to pitch to 400+ investors and industry leaders at demo day

**Teacher, UCL & UCL-Consultants, London** 2019 — 2022

- AI Masterclass for DSTL, Machine Learning MSc, Applied Machine Learning Systems, Programming & Control Systems, Cloud Data Centres & Edge Computing, Python Programming, Mathematical Modelling & Analysis
- Roles included: Lecturing, examining, tutorial demonstrations & supervisions, course & exam design

**Research Engineer Intern, VividQ Ltd., Cambridge** 2018 — 2019

- Developed large FOV and eybox 3D displays without compromising size and quality using waveguides and holographic optical elements. Used MATLAB and Zemax

**Research Engineer Intern, Dyson Ltd., Bristol** 2017

- Thermodynamics research team working with CAD, CT scans, SEM, MATLAB, etc.
- Allocated \$20,000 budget to set up new suppliers and write Statements of Work for contracted researchers
- Participated in 2017 Hackathon, taking third place

**Engineers Without Borders Challenge, U.K.** 2017

- Competitive 20-week national competition to develop engineering solutions for Bambui, Cameroon
- Won entry out of 4,600+ applicants to finals where presented to 200+ engineers and 18 judges
- Finished 3<sup>rd</sup>, placing in top 0.1% of applicants

**Internships at Cambridge Nanosystems, Polygelco, and Ubisense** Pre-2017