Christopher W. F. Parsonson

cwfparsonson.github.io/ https://github.com/cwfparsonson
scholar.google.com/citations?user=2Vw7d64AAAAJ&hl cwfparsonson@gmail.com

Technical Skills

Python, MATLAB, PyTorch, TensorFlow, DGL, PyTorch Geometric, W&B, Hydra, TensorBoard, Ray, RLlib, Gym, Pandas, NumPy, SciPy, Scikit-learn, PySCIPOpt, 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, PySCIPOpt, 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-C Consultants, London **2019 — 2022**

- 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^{rd}, placing in top 0.1% of applicants

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