William Matthews **DPhil MEng**

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EDUCATION

University of Oxford, University College October 2019 - December 2023
DPhil *Oxford, UK*

- Silicon Photomultipliers as Optical Wireless Receivers in Ambient Light. Supervisor Prof. Steve Collins.
- Published a total of thirteen papers, with three more in draft. Presented at three conferences.
- Achieved world-record data-rates using a SiPM as a receiver with On-Off Keying and OFDM.
- Created a high-performance Monte-Carlo simulator of SiPMs.

University of Oxford, University College Matriculated 2015 - Graduated 2019
First Class MEng Engineering Science *Oxford, UK*

- Mathematics and Statistics-dense course. Specialisms in Information (ML, Signal Processing, Communications), Robotics (Control, Planning, Machine Vision), Math, Plasmonics and Semiconductors.
- Earned a Scholarship for First Class performance.
- 4th Year Project: 'Graph Modulation: Ultra-efficient Communication and Storage for 6G Systems'. Supervised by Prof. Justin Coon.

EXPERIENCE

Avos Ltd. July 2023 - Present
Software Engineer *Cambridge, UK*

- Full stack software Engineer, responsible for R&D on a new product.
- Working with ML models.

Oxford University Racing May 2019 - September 2020
Chief Software & Electrical Engineer *Oxford, UK*

- Managed a team of ten people. Led the development for key electric vehicle systems.
- Responsible for all low voltage electrical systems and software on the vehicle.
- Developed a continuous integration system for vehicle control unit software, among other circuits.

PrOXisense Ltd. July 2018 - September 2018, July 2019 - April 2020
Intern, Consulting Software & Electrical Engineer *Harwell, UK*

- Solely responsible for creating critical software to process sensor data, as well as processing raw signals for customer demonstrations, sensor calibration and internal R&D use.
- Created a custom thermal simulation package to guide future thermal product sensor development.
- Using Kalman filters, improved sensor accuracy and precision for blade tip timing and clearance measurement by a factor of 200 through my own initiative.
- Processed and presented results to clients, leading towards two new contracts.

TECHNICAL STRENGTHS AND CAPABILITIES

Languages	Go, C/C++, Python 3, MATLAB, SQL, Haskell, shell, PHP, Type/JavaScript, LaTeX, CSS
Workflow	zshell, tmux, vim, git, ssh, VSCode
Software	React, Simulink, KiCAD, FreeCAD, Solidworks, Wireshark, GIMP
Methods	Discrete and Continuous Signal Processing, Machine Learning, Optimisation, Statistics, Data Visualisation

Comfortable with Torch, Keras and Tensorflow. Wrote an autograd from the ground up.
Daily-drives GNU/Linux. Experienced at designing, building and testing RF circuit boards, 3D printing.

HOBBIES AND INTERESTS

Fishing, Pool, Squash, Gym, OpenStreetMap Contributor.
Enjoys solving Project Euler problems, working on my blog, and other electrical/software projects.
Current reading in Compressed Sensing, Machine Learning, Statistics, and Derivative Pricing.
Attempting research into ML in my own time, with a goal to publish a paper in the field within two years.

REFERENCES AND ADDITIONAL INFORMATION

References available on request. Additional information available on https://willmatthews.xyz.