# William Matthews MEng

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#### EDUCATION

University of Oxford, University College DPhil

- Title: Free Space Optical Wireless Communications using Silicon Photomultipliers (SiPMs) as receivers. Supervised by 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

First Class MEng Engineering Science

Matriculated 2015 - Graduated 2019 Oxford, UK

October 2019 - July 2023

Oxford, UK

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

# EXPERIENCE

Avos Ltd.

Software Engineer

• Full stack software Engineer, responsible for R&D on a new product.

· Responsibilites in development of presence detection technology (ML).

# **Oxford University Racing**

May 2019 - September 2020 Oxford, UK

July 2023 - Present

Cambridge, UK

Chief Software & Electrical Engineer

- $\cdot\,$  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 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

Intern, Consulting Software & Electrical Engineer

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

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, Financial Markets and Derivative Pricing.

#### **REFERENCES AND ADDITIONAL INFORMATION**

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