

# Alfred Wong

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## Education

**University of Cambridge, Trinity College**  
Part I Mathematics - Part II Engineering (1st)

BA MEng  
2016 - 2020

### Examinations

STEP II, III: S, 1 - A Level: 3A\*, 2A - GCSE: 11A\*, 2A - GRE: 170, 167, 4.5 - ACT: 35

## Experience

### Microsoft Research

Research Engineer

Remote

Dec 20 - present

- Facilitated VR/AR hardware research, leveraging various technologies to accelerate prototype iteration cycles
- Maintained/developed OpticSim.jl, an open-source package for CSG-based optical simulation/optimisation

### Goldman Sachs

Summer Analyst

London

Jun - Aug 19

- Sat with two desks: Client Services; Equities Structured Products Strats
- Implemented a full-stack application to visualise distributed workflows; wrote various reports/models

### PlayFusion

Intern

Cambridge

Jul - Sep 18

- Studied the viability of applying an ML-based AI to a newly released video game (trained from tabula rasa)
- Wrote an adaptation of AlphaZero's asynchronous policy-value Monte Carlo tree search algorithm
- Architected/deployed a scaling distributed cluster (EC2, TCP/IP) for training the policy-value network

### WaterScope

Intern

Cambridge

Jul - Sep 17

- Designed augmentations for a 3D-printed microscope to enable smart features such as autofocus/timelapse
- Kickstarted an image processing project for rapid detection of CFUs, facilitating usage in developing countries

## Leadership and Achievements

### College Sports

- Trinity College Basketball Captain: led 3 sessions/week, secured promotion to Division 1 (of 5)
- 1st Men's Novice VIII: 9/9 race win record, first Fairbairn Cup victory in 33 years
- Lower Boats' Captain: student-led program teaching rowing to 100+ novices, as a team of 7

### School

- Music competition: composed for and led an orchestra, choir, small groups and soloists, as a team of 3
- School Symphony Orchestra: Concertmaster for Dvorak 9, Violin 2 leader for Beethoven 5
- House Vice-Captain & Prefect: organised and participated in sports teams across all year groups
- Mathematical Olympiads: sat the BMO2 and attended an Olympiad Training Camp at Oxford
- National Junior Chess Squad: represented England at the Gibraltar International Junior Chess Festival

## Projects and Skills

**Medical machine learning:** Feature disentanglement and balanced representation learning



**Tetris:** C (96 × 64 × 16bit colour display at 60fps on a Cortex-M0 with 2kB SRAM); OCaml



**Julia:** OpticSim.jl; interactive Hodgkin-Huxley model deployed on Heroku



Python · C/C++ · Java · JavaScript · React · d3.js · HTML/CSS · Unity · C# · OCaml · Linux · Bash/Shell  
Git · CI/CD (Github Actions) · AWS EC2 · SQL · Keras/Tensorflow · L<sup>A</sup>T<sub>E</sub>X · Basketball · Rowing · Chess