DANIEL ARMSTRONG

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EDUCATION

Magdalen College, University of Oxford *2018-2021*

- BA Computer Science, taking modules in machine learning, algorithms and compilers.
- Placed 11th in the year, receiving first-class honours in both examinations and practical work.
- Awarded Demy Scholarship for outstanding achievement in first-year examinations.
- President of the Oxford University Surf Club, managing a budget of £10,000 and over 100 members.

Exeter Mathematics School *2016-2018*

- A Levels in Maths (A*), Further Maths (A*) & Computer Science (A*); AS Level in English Literature (A).
- Honoured as one of the top 50 performing students in A Level Computer Science.
- Awarded the Academic Excellence in Computer Science prize at the 2018 EMS Awards.

WORK HISTORY

Software Intern, Ocado Technology (10x Advanced Research) *Jul 2019 – Aug 2019*

- Designed path planning algorithms for autonomous robots in complex indoor environments.
- Built an online spatial indexing system to store points, resulting in a 500% decrease in planning times.
- Invented an original path planner that mitigated many of the issues I discovered within existing planners.
- Asked to write a paper *(link)* on my algorithm by my team, due to the significance of my contributions.

Technology Officer, Magdalen Ball *May 2019 – Jun 2020*

- Built an online ticketing site to handle £400,000 in purchases from 2000 users, with a Node.js/React stack.
- Saved over £7000 in fees by building a custom ticketing system instead of going through a vendor.
- Designed an attractive, compelling website to generate sales and tell the story of the ball.

Statistical Analyst, ATASS Sports *Jan 2017 – Apr 2017*

- Led a student programming team to predict the result of Premier League football games in R.
- Designed a statistical model and preformed parameter tuning using supervised learning.
- Achieved the highest level of prediction accuracy across all teams, due to my model parameter tuning.

PERSONAL PROJECTS

Face Tracking Robot (Computer Vision / Robotics) *Mar 2019 – Apr 2020*

- Constructed a robot that tracked faces with a laser using servo motors and a webcam, using Python.
- Used HAAR cascade classifiers to detect faces in live webcam feed and obtain a target.
- Reduced latency by using multithreaded predictive tracking, resulting in detection at over 30 FPS.

Spam Detection (Natural Language Processing) *Dec 2018 – Feb 2019*

- Built a logistic text classifier from scratch, filtering spam with a 97% success rate, using Python and NLTK.
- Adapted gradient descent for use with sparse matrix operations to dramatically reduce training times.

Autonomous Race Car (Neural Networks) *May 2018 – Jul 2018*

- Designed a self-driving car that learned to race around a 2D environment via ray-cast sensors, in Java.
- Implemented my own deep neural network classes from scratch, and successfully trained versatile bots.

Image Based Maze Solver (Computer Vision) *Feb 2017 – Oct 2017*

- Created a multithreaded Python GUI to find and solve a maze in a given bitmap image.
- Detected maze structures in images using custom frequency analysis algorithms in R.
- Designed a quadtree-based RSR pruning technique, resulting in an up to 60% reduction in running time.

INTERESTS

I sail competitively around the world and was a member of the British Sailing Team for 5 years, winning a silver medal at the 2015 World Championships for my class. As well as this, I play ice hockey at university and surf when back home in Devon. I'm also really interested in film and volunteer at my local community cinema.