# ZIYI ZHU

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## EDUCATION

**University of Cambridge, Christ's College** — **Cambridge, United Kingdom**
*Master of Engineering* — Expected 2022

- Results: First class; Top 4% (ranked 12 out of 288) and awarded College Scholarship.
- Modules: Information and Computer Engineering, Electrical and Information Sciences, Instrumentation and Control.
- Coursework: Python programming, MATLAB programming, data structures and algorithms, CAD with SolidWorks, structural project, conceptual product design, integrated mechanical and electrical design, hand-drawing skills.
- Awards: Winner of Christ's College Art Prize 2021; Winner of CUES Hackathon 2021.

## WORK EXPERIENCES

**UBS Group AG** — **London, United Kingdom**
*Financing Quant Intern* — June 2021 – Aug. 2021

- Supported the trading activity and new business initiatives for the Stock Borrow Loan (SBL) desks around the world, which includes borrowing securities from the street, and lending to Hedge Funds.
- Developed tools for analysis on yield curves on the Advanced Cloud Quantitative Analytics (ACQA) platform.
- Designed and optimized data processing algorithm for analysing daily trading activities and addressing price discrepancies.

**Ocado Technology** — **Hatfield, United Kingdom**
*Machine Learning Intern* — July 2020 – Sept. 2020

- Collaborated with engineers to design an autonomous robot navigation and control system using end-to-end imitation learning.
- Streamlined the dataset collection process (35,000+ data points) for training machine learning models in Python and TensorFlow.
- Designed goal-conditional imitation learning network and devised custom loss function to enhance model performance.
- Benchmarked machine learning models in urban simulation using Unreal Engine 4 to discover optimal training parameters.

**University of Cambridge** — **Cambridge, United Kingdom**
*Research Intern* — July 2019 – Sep. 2019

- Independently designed and engineered a system with standard DSLR cameras, Arduino and Raspberry Pi to accurately capture a 3D representation of a scene in the form of HDR light field for stereoscopic vision.
- Assembled and calibrated the HDR Multi-Focal Stereo Display in collaboration with postdoctoral researchers.
- Formulated an algorithm for dividing an HDR film into clusters of scenes using MATLAB.

**HY M&E Consultancy Services** — **Singapore**
*Assistant Engineer* — Mar. 2018 – May 2018

- Explored the use of Computational Fluid Dynamics (CFD) simulations for precise evaluation of site-specific fan performance.
- Developed an architectural visualization software in Unity Engine for in-depth evaluation of lightning protection in buildings.
- Streamlined the diagnosis of faulty transformers (20+ clients) by coding a Windows application with custom diagnostic metrics.

## ACTIVITIES

**Hack Cambridge 101** — **Cambridge, United Kingdom**
*Team Leader* — Jan. 2020

- Designed trading algorithms using dual listing arbitrage and competed on virtual platform to achieve top 5 in total P&L.
- Conceptualized and spearheaded a smart bin initiative that united a team of 4 engineers and aims to improve energy efficiency.
- Integrated machine learning and IoT for waste sorting (~90% accuracy) and efficient planning of garbage truck routes.

**Cambridge University Robotics Society Rescue Major** — **Cambridge, United Kingdom**
*Member* — Oct. 2018 – June 2019

- Cooperated with a team of undergraduates to design and construct rescue robot which can be controlled using ROS.
- Experimented with 2D mapping for autonomous driving and navigation of the robot using LiDAR and infrared sensors.

**Personal Projects**

- Authored blog posts highlighting 10+ personal projects and academic studies with 2000+ views and 1000+ unique visitors.
- Implemented GANs to generate realistic-looking Pokémon and CNNs with logistic regression to classify the types of Pokémon.
- Modelled price of stocks with geometric Brownian Motion and verified Black Scholes Model with Monte Carlo simulation.

## SKILLS & INTERESTS

**Languages:** Chinese (Native), English (Fluent), Japanese (Elementary).
**Programming:** Expert in Python, JavaScript and HTML; Experienced in C++, C#, Java, PHP and MATLAB.
**Computing**: Proficient in machine learning and computer vision; Expert in software and web development (Linux/Windows); Experienced in game development (Unity/Unreal Engine), microcontrollers (Arduino/Raspberry Pi), robotics and CFD simulations.
**Software**: Proficient in SolidWorks and Photoshop; Experienced in TensorFlow, OpenCV, AutoCAD and SketchUp.
**Hobbies:** Guitar, piano, drum set, oil painting, sketching, photography, pool, tennis, table tennis and travel.