Wenqing Zong

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Education

2021 - 2022 **Imperial College London**,
MSc.Advanced Computing.
Final Grade 70+

2018 - 2021 **The University of Manchester**,
BSc.Artificial Intelligence.
Top 10% Graduate

2017 - 2018 **INTO Manchester**,
Foundation Year.
Top 10% Graduate with A*A*A* in Maths, Further Maths and Physics

Experience

Jan 2023 - Present **Software Engineer**, *Codethink*, Manchester, UK.
- Developed and contributed to Free and Open-Source Software to automate quality assurance testing.
- Quality Assurance Deamon: Provides remote interaction with a device in place of having to physically interact with it. It's a remote control for test rigs. [Link to Blog Post]
- Testing in a Box: Integrates GitLab server/runner, OpenQA webUI/worker, and Q.A.D. into one box, making it an all-in-one solution for fully automated hardware testing. On-going project.
- Skills: C, CI/CD, Ansible, Docker, Team communication, Technical writing for documentation and blog post.

Jun 2021 - Aug 2021 **Research Internship**, *AgCIM Research Centre*, Guangzhou, China.
- Utilized Pytorch to develop an image-based rural area hazard detection system with core functionalities such as object segmentation and road category classification.
- Improved the accuracy of the road width calculation module in City Information Modeling (CIM) by incorporating the MegaDepth network.

Jun 2022 - Aug 2022 **Network Support Engineer - Part Time**, *Sobey*, London.
- Monitored the status of over 200 server clusters and ensure the proper functioning of the database.
- Regularly performs maintenance on PCs for non-technical colleagues.

Skills

Languages	Python, Java, Rust, C, JavaScript, familiar with C++
Frameworks	PyTorch, Numpy, Spring, OpenGL, Flask, JUnit
Utilities	Linux, Docker, Ansible, Git, Markdown, LaTeX, CI/CD, OpenQA, familiar with AWS
Communication	English(fluent), Chinese(mother language)

Projects

Mar 2023 - May 2023 **Brainf*ck Interpreter in Rust**, [Code], Rust.
- Developed a highly optimized interpreter for the Brainfuck language using Rust.
- Implemented a modern and user-friendly command-line interface.
- Included extensive debugging messages for static checking and runtime errors.
- Achieved high test coverage and fully documented the project.

May 2022 - Sep 2022 **Unsupervised Domain Adaptation on Medical Images**, *Dr. Matthew Williams, Imperial College London*, [Code], PyTorch.

- Devised a novel method for addressing the domain shift problem, enabling a model trained on one dataset to adapt and fit to another dataset without significant loss in performance.
- The proposed novel method offers two key benefits:
  1. Source-Free: Model adaptation does not require the source dataset, which enhances cross-institutional collaboration efficiency and addresses data privacy.
  2. Supports Various Network Backbones: The novel method is compatible with all neural network architectures, without any special requirements.
- Demonstrated the efficacy of the proposed method on BraTS2021 dataset, achieving comparable performance with the state-of-the-art approach.

Jan 2022 - Mar 2022 **Robot Learning and Control in Maze Environment**, *Self-motivated*, PyTorch.

- Implemented several algorithms to teach a robot how to solve a maze.
- Traditional algorithm: Cross Entropy Method. Continuously adjusted the covariance matrix to make the action distribution approach the known optimal solution.
- Machine Learning: Trained a model to learn the non-linear environment and later used in Model Predictive Control algorithm.
- Behavioural Cloning. Trained a model to mimic how humans navigate in the maze. Implemented the DAgger algorithm to improve the model's performance while reducing the amount of data needed.

Oct 2020 - Apr 2021 **Procedural Terrain Generation for Video Game Development**, *Dr Ke Chen, The University of Manchester*, PyTorch, C#, Unity.

- Utilized Perlin noise to procedurally generate terrains for modern RPG games and simulated hydraulic erosion process to enhance playability.
- Employed Spatial GAN model to generate realistic terrain for a flight simulation game.
- Completed as a First Class Final Year project for my undergraduate degree.

Oct 2020 - Dec 2020 **MCTS Board Game AI**, *Team*, [Code], Java.

- Collaborated with a team of four to develop an AI bot to play a board game, Kalah.
- Implemented a bot based on Monte Carlo Tree Search with some improvements such as Early Payout Termination and MCTS-Minimax hybrid.
- Our bot beats 37 bots submitted by other teams (51 in total) in a tournament.

Jan 2020 - May 2020 **EventLite Website**, *Team*, Java, Spring, JUnit, Jenkins.

- Lead a team of 6 people to develop a website, EventLite, in Spring framework.
- Set up and maintained the website database.
- Code is maintained in a high standard with unit tests and security tests of each function we implemented.

Oct 2019 - Jan 2020 **Stendhal Game**, *Team*, Java, JUnit, Jenkins.

- Worked in a group of 7 to maintain an open source game in GitLab.
- Fixed bugs raised by players and added JUnit tests for them. Introduced new story-line based on the original game and refactored some hard-to-read legacy code.

Extra Curriculars

Oct 2020 - Mar 2021 **Animal Observer Volunteer**, *ZSL Instant Wild*.
Identified hundreds of animals from photos to promote behaviour analysis, demonstrating a strong attention to detail and the ability to concentrate for extended periods of time.

Sep 2019 - Jun 2020 **PASS Leader**, *The University of Manchester*.
Helped several first year students in Peer Assisted Study Session, offering academic support and developed interpersonal skills.

Dec 2019 - Dec 2019 **Panda Volunteer**, *China Conservation and Research Center for Giant Panda*.
Assisted in cleaning panda rooms, preparing their food, and collecting data to monitor their health.

Sep 2018 - Jun 2019 **Student Representative**, *The University of Manchester*.
Acted on behalf of students to raise concerns and suggestions to department staff, with the aim of making a positive impact on the CS department community.

Jun 2018 - Aug 2018 **IELTS Teaching Assistant**, *DISA English*.
Assisted nine students in achieving a score of 7 or higher in the reading and listening sections of the IELTS exam.