

RUNZE (AIDEN) CHENG

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About me

- Currently looking for Summer/Winter/PlacementYear internship with respect to Computer Engineering.
- Proficiency in C/C++, Java, Python, Haskell and SQL with over 3 years of programming experience.
- Strong interests in Machine Learning, Data Analysis, Engine Dev and Quantum Computing.
- Self-driven learner and team player.
- Tools: Git, Zsh, SSH, CMake and Makefile, Springboot, Mybatis, Numpy, Pandas, Maven etc.

Education

University College London

London, UK

BSc Computer Science

September 2023 – Present

- **Core Courses:** Functional programming, Object Oriented Programming, Data-structure and Algorithm Design, Theory of Computation, Computer Architecture and Concurrency, Software Engineering.
- **Minor:** Robotics
- **Expected Grade:** First Class (with distinction)

University College London

London, UK

Undergraduate Preparatory Certificate for Sci. and Eng.

September 2022 – June 2023

- **Grade:** Passed with distinction (87%) with 97% in Physics and 94% in Math.

Project Experience

Geometry-War

London, UK

github.com/AidCheng/Geometry-War-Game

August 2024

- Developed an indie game using C++ and the SFML library.
- Built the game with the third-party module utilizing CMake.
- Used shared_pointer to implement the RAII mechanism.
- Designed systems to handle specific game functions like lifespan, movement, and spawning.
- Incorporated various graphical effects utilizing game mathematics, such as bound protection, explosions, and shooting mechanics.

Medical Database Webapp

London, UK

March 2024

- Developed a web application with a Java backend and JSP/HTML frontend with Bootstrap framework on UI design.
- Created a fully functional app with a graphical frontend and robust backend data model, allowing user to interact with the data stored in JSON format.
- Designed the application following the MVC (Model-View-Controller) design pattern.
- Utilized a Model Factory for model creation, enhancing data hiding and improving security.
- Used Maven for package management.
- Deployed the app using Apache Tomcat.

Data mining on market performance

London, UK

December 2023

- Conducted a data mining project using Python with Numpy, Pandas, Scipy, and Statsmodels libraries.
- Analyzed specific product reviews on Amazon to extract and quantify information for sellers.
- Applied TOPSIS and TF-IDF models for data quantification.

Embedded system application with Arduino

London, UK

September 2023 – December 2023

- Built a control system as part of a bioreactor with NUCLEO and ESP32 microcontroller. The system is able to control three major environmental parameters using NUCLEO and actuators and update the real-time data to the cloud through ESP32 and AWS.
- Outcome:
 - Comprehension of system interruption, timer, I/O, memory and ESP32 dev
 - Communication protocol between microcontrollers (especially I2C) and backend database
 - Teamwork experience in large group project

Tetris AI

London, UK

November 2023

- Developed a Tetris AI player using Python.
- Designed the AI to predict possible outcomes, score each move, and select the best steps for achieving the highest score.
- Scored movements based on factors like brick height, bumpiness, and valleys on the board.
- The AI performed exceptionally well in tests across five random seeds.

Research project on Artificial Intelligence's application in medicine

London, UK

Feb 2023 – May 2023

- Critical investigate into the state of art applications of artificial intelligence in medicine, specifically in
 - AI model helping to predict the bio-structure of various kinds of protein (Focusing on the example of AlphaFold 2)
 - Computer vision approach to identify different tissues within in-vivo environment
- From research into written presentation

Awards

The Mathematical Contest in Modelling (MCM) 2024

London, UK

Successful Participant

2024

The Sichuan Province Physics Olympic Games

Chengdu, PRC

2nd Prize

2022

The Sichuan Province Math Olympic Games

Chengdu, PRC

2nd Prize

2019

Activities & Leadership

UCL Computer Science Society

London, UK

Member

September 2023 – Present

President of the Student Union

Chengdu, PRC

Tanghu High School

December 2019 – June 2022

Skills & Interests

Skills: Fullstack development. Strong Programming skill in C/C++, Haskell, Java and Python. Experience with fundamental data mining (numpy and pandas). SQL, Springboot, Vue and UNIX. Good understanding and problem-solving ability in Math and Physics. Leadership, team work and communicating skill.

Interests: Coding, App Development, Quantum Computing, AI, Machine Learning, Data analysis and statistics, Physics. Video gaming and Sudoku.

Languages: Mandarin (Native speaker), English (Native-speaker level), Japanese (Beginner).