# Xiaoran (Daisy) YU

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## EDUCATION

**Imperial College London**, London, UK                                     Enrolled: 10/2021 — Expected: 06/2025
**MEng Electronic and Information Engineering**                       2$^{nd}$ Year Result: 79.57% (First Class)

- Modules include: Software Systems, Computer Architecture, Compilers, Communications, Information Processing, Analysis and Design of Circuits, Algorithms, Programming, Group Design Project
- Developed skills: C++, Python, MATLAB, SystemVerilog, SQL, Arduino, Swift

**Qingdao No. 2 Middle School**, Qingdao, China                        Enrolled: 09/2018 — Graduated: 06/2021
**Class of Physics and Engineering**                                           Overall GPA: 95/100 (Top 5%)

- Advanced Placements (AP): Calculus BC (5), Computer Science A (4), Physics C: Electricity and Magnetism (5), Physics C: Mechanics (5), Statistics (5), Macroeconomics (5), Microeconomics (5), Environmental Science (4)

## PROJECTS

**EEEBalanceBug: Second Year Group Design Project**, Imperial College London          London, UK
*Group Leader*                                                                                               05/2023 - 06/2023

- Worked closely with the group to design and build an autonomous 2-wheel balancing rover that is capable of navigating through a maze and creating a map
- Focused on FPGA- and camera-related part of work,implemented various image processing programs and filtering algorithms to extract useful information about the maze from the video output of D8M camera
- Established communications between FPGA and ESP32 with different methods (hardware pins or UART)
- Contributed to the development and testing of the maze-exploring algorithm and chassis design

**Luigi Wagon: an FPGA-based IoT System**, Imperial College London          London, UK
*Group Member*                                                                                       02/2023 - 03/2023

- Collaborated with the group to develop an IoT system that supports our multi-player video game, Luigi Wagon, played using FPGAs
- Focused on FPGA-side development, including hardware setups, local processing of accelerometer data, and establishment of 2-way communication between FPGA and host through UART
- Completed a project report on the system with the group, formatted it with LaTex

**C to RISC-V Compiler in C++**, Imperial College London          London, UK
*Group Leader*                                                                               02/2023 - 03/2023

- Wrote a compiler in C++ that takes C90 input programs and compiles them into RISC-V assembly code
- Built the AST and set up the parser according to C90 grammar in Bison
- Implemented C90 features that have different levels of grammatical complexities with my partner

**RISC-V Simulator in SystemVerilog**, Imperial College London          London, UK
*Group Leader*                                                                                    12/2022

- Collaborated with the group to implement a single-cycled CPU and upgrade it into a pipelined CPU with data cache
- Implemented the top-level module of the CPU in SystemVerilog
- Performed verification of the processor with the C++ testbench

**EEERover: First Year Group Design Project**, Imperial College London          London, UK
*Group Leader*                                                                                               05/2022 - 06/2022

- Collaborated with the group and designed a remotely controlled rover which could manoeuvre around a simulated lunar landscape and identify the material composition of six types of rocks, distinguished by their differences in signal transmissions
- Responsible for developments of the Arduino program, an iPhone app for controls and communications, and the sensor circuit designs, including the integration of the PCB
- Conducted tests on the complete design and conducted a demo on the working rover
- Completed a final report on the design with the group, formatted it with LaTex

## EXTRACURRICULAR ACTIVITIES

**Imperial Sign Language Society**, Imperial College London          London, UK
*Member*                                                                                    10/2022 – Ongoing

- Attended biweekly teaching sessions on basic knowledge in British Sign Language, and learned about the deaf community and culture

**Systems, Man, and Cybernetics (SMC) Conference**, IEEE

Bari, Italy

*Participant*

10/2019

- Participated in the BR41N.IO BCI Designers' Hackathon as the group leader:
  - Developed a system that implements Brain-Computer Interface to control a drone that could chase, disable, and destroy other drones
  - Designed the user interface, completed the calibration of BCI using Unicorn Speller
  - Developed Python programs for translation of BCI recognition results into drone commands
- Attended talks, presentations, and seminars at the SMC Conference

## TECHNICAL SKILLS

- **Programming:** Competent in use of Python, C++, MATLAB, LaTex, with experience in SystemVerilog, SQL, Java, and Swift. Self-learning HTML 5, CSS 3, and web development. Interested in web crawling with Python.
- **Software:** Proficient in Microsoft Office.
- **Languages:** Proficient in Mandarin (native speaker). Learning German (currently in B1).

## TEST SCORES, HONORS & OTHER INFORMATION

- **GRE:** Total:326 (Verbal Reasoning: 157, Quantitative Reasoning: 169, Analytical Writing: 4.5)   09/2023
- **TOEFL:** Total: 112 (Reading: 30, Listening: 30, Speaking: 24, Writing: 28)   08/2020
- **SAT:** Total: 1520 (Evidence-based Reading and Writing: 720, Math: 800)   12/2019
- **Dean's List (Year 2)**, Imperial College London   08/2023
- **German Level 1 Pass with Distinction**, Imperial College London   07/2022
- **AP Scholar with Distinction**, College Board   07/2020
- **Third Place**, The BR41N.IO BCI Designers' Hackathon at IEEE SMC Conference   10/2019
- **Interests:** Guitar, Piano, Ocarina, Skateboard, Football, Swimming, Skating   Ongoing