

# BRANDON KANG

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## EDUCATION

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### National University of Singapore Bachelor of Engineering (Computer Engineering)

Aug 2023 - May 2027

- GPA: 4.92/5.0 (First Class Honours)
- Undergraduate Teaching Assistant
- School of Computing Student Ambassador
- Expected Date of Graduation: May 2027

## PROJECTS

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### Multilayer Mahjong Game

Oct 2024 - Nov 2024

- Developed a multiplayer Mahjong game on FPGA using Verilog by connecting four Basys3 boards.
- Designed and implemented UART serial communication protocol for seamless data exchange between boards.
- Utilized Finite State Machines (FSMs) to manage game flow and synchronization across all players.
- Conducted rigorous testing and debugging to ensure reliability under various game scenarios.

### Orbital

Jun 2024 - Aug 2024

- Developed a cross-platform mobile application for students staying on campus in NUS to give away unwanted items to reduce wastage.
- Implemented Firebase backend services for real-time database management, user authentication, storage and data handling.
- Designed a responsive and user-friendly UI/UX using JavaScript and React Native.
- Conducted thorough software testing such as unit testing, integration testing, and user acceptance testing to ensure reliability.

### Search and Rescue

Jan 2024 - May 2024

- Designed a tele-operated robotic vehicle to perform a search and rescue mission in a simulated environment.
- Implemented a LiDAR sensor together with Hector SLAM for obstacle detection and localisation.
- Programmed ATmega2560 Microcontroller in bare metal to achieve serial communication via UART with other components.
- Utilised colour and ultrasonic sensors to send information remotely to the operator via our communication protocols.
- Implemented a client-server system to allow control over the robot remotely by sending commands over a secure TLS connection.

### Supervised Machine Learning

Aug 2023 - Nov 2023

- Built a program to recognise handwritten digits using pattern recognition and supervised machine learning using the K-nearest neighbours algorithm.

## EXPERIENCE

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**NUS College of Design & Engineering, Undergraduate  
Teaching Assistant (CG1111A)**

**Aug 2024 - Present**

- Mentored undergraduate students in fundamental circuit analysis techniques, circuit principles and C programming through hands-on 3-hour laboratory sessions twice a week.
- Graded a total of 240 student lab reports completed during laboratory sessions.
- Liaised with module professors regarding administrative matters.

**Private Tutor**

**Jan 2024 - Present**

- Tutored GCE 'A' Level H2/H1 Physics in a one-on-one setting.
- Designed and executed a tailored curriculum for students according to their learning abilities, which improved their learning experience and interest in the subject.
- Inspired students through close mentorship and imparted knowledge beyond academics to help explore their interests.

**Republic of Singapore Air Force, Force Protection Duty  
Controller and Operations Specialist**

**Nov 2021 - Feb 2023**

- Facilitated security related support for large scale events such as the German Airforce's transit, and Minister level visits in the Airbase.
- Processed Access Clearances for entry of all personnel into base.
- Formulated monthly reports by liaising with different departments to obtain relevant data.
- Prepared and conducted briefings on squadron status and outstanding issues every other day.
- Provided security related support for base operations and events.