JOSHUA NEE

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EDUCATION

National University of Singapore, *BEng (Computer Engineering)*   **Aug 2021 - Present**
- Expected Date of Graduation: July 2025
- Cumulative Average Point: 4.79 / 5.0
- Course work: Programming Methodology (A+), Data Structures and Algorithms (A), Introduction to Artificial Intelligence (A+), Software Engineering & OOP (A-)

Raffles Institution, *Integrated Programme*   **Jan 2013 - Dec 2018**
- GCE A-Levels, Rank Points: 87.5 / 90
- Course work: Higher 3 SMU Game Theory (Merit), Higher 2 Mathematics (A), Higher 2 Physics (A), Higher 2 Economics (A), Higher 1 Chemistry (A), Higher 1 Project Work (B), Higher 1 General Paper (B)

WORK EXPERIENCE

Solutions16, *Software Engineering Intern*   **Sep 2022 – Jan 2023**
- Developed an end-to-end system using MosquittoMQTT broker on DigitalOcean Droplet to receive published data from LilyGO SIM7600 and ESP32 to instantaneously send data to the frontend dashboard in Blynk and backend database using MongoDB, collating over 200k data points to date
- Established alerts for Whatsapp and Telegram using Meta for Developers and BotFather respectively to send just-in-time alerts for companies, successfully preventing 2 instances of severe property damage due to pump room leaks
- Implemented Blynk IoT platform automation features to support automatic email notifications, eliminating the need for 8-hourly manual updates

National University of Singapore, *Teaching Assistant*   **Aug 2022 - Present**
- Designed class materials and conducted tutorial and lab sessions for 27 students in the Data Structures and Algorithms module during the current semester
- Hosted weekly consultation sessions for all 207 students taking the module

Republic of Singapore Navy, *Marine Systems Engineer*   **Feb 2021 - May 2021**
- Spearheaded creation of an Android mobile application using Android Studio to facilitate accuracy of data logging and expedite calculation process, resulting in a paradigm shift in approach
- Cooperated in a team of three to maintain and upgrade the ship's internal systems
- Underwent Voluntary Extension of Service (VES) and Short Term Contract (STC)

PROJECTS & HACKATHONS

Telegram Bot - Study Buddy   **May 2022 - Present**
- Directed the development of a Telegram Bot aimed at connecting students to form study groups
- Deployed to 80 Engineering students in our pilot program, with 29 current active users
- Conceptualized expansion plans targeting NUS College of Design and Engineering in 2023
- Built in Python with MongoDB for backend and Heroku for deployment

Game Development - Orbital (Apollo 11 / Advanced)   **May 2022 - Aug 2022**
A self-directed Independent Software Development Project with structured peer evaluation, critique and presentation milestones, for students to pick up software development skills on their own
- Programmed a single-player precision platformer game, using sprites and art style adapted from classic games, with around 1 hour of playtime
- Built in C# using the Unity game engine

Augmented Reality - [Future Interfaces With Smart-Glasses](#)   **May 2022 - May 2022**
- Formulated use cases for AR smart glasses to guide users through shopping malls with location triggers and user tracking
- Prototyped using Wizard of Oz methodology via an Android application on the Nreal Light AR glasses during the 48-hour hackathon
- Built in C# using the Unity game engine with Microsoft Mixed Reality Toolkit

Robotics - [Alex to the Rescue!](#)   **Mar 2022 – Apr 2022**
- Built and controlled an Arduino / Raspberry Pi robot to navigate through a maze to recognise obstacles
- Utilized skills in bare-metal programming, Hector SLAM, and TLS-secured communication
- Made use of LIDAR, motor drivers, motor encoders, and ultrasonic sensor

Blockchain - [Singapore Blockchain Innovation Challenge](#)   **Dec 2021 - Dec 2021**
- Won 3rd Place in the Enthusiast Track of the hackathon as a team of 4
- Developed a web app using ReactJS, focused on interoperability between a health blockchain and insurance blockchain to build an instant-payout solution from viewpoint of an insurance company
- Utilized the Affinidi platform to verify health certificates and extended project's scope with ZKSync Layer-2 platform to minimize gas fees

EXTRA-CURRICULAR ACTIVITIES

National University of Singapore, *Orientation Group Leader*   **Jun 2022 – Jun 2022**
- Led as Orientation Group Leader for the NUS School of Computing e-Freshmen Orientation Programme overseeing a group of 30 freshmen

National University of Singapore, *Orientation Organizer*   **Dec 2021 – Jun 2022**
- Organised NUS Electrical and Computer Engineering Camp for over 100 incoming freshmen

Raffles Institution, *Orientation Organizer*   **May 2015 – Dec 2016**
- Teamed with over 100 members to orchestrate the Secondary One orientation camp and partnered with five others to mentor one class throughout their Year One journey

SKILLSETS

- Languages: English, Chinese
- Technical: Computer-Aided Design, Microsoft Office Suite (Word, PowerPoint, and Excel), MATLAB, AWS Lambda, Blynk
- Programming: Arduino, Android Studio, AWS Lambda, C, C++, C#, CSS, GPIO Programming, HTML, JavaScript, Lua, Meta for Developers, MongoDB, Python, Raspberry Pi, React, SQLite, Telegram, Unity