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Personal Statement

I am Suther David Samuel, a Final Year Computer Engineering undergraduate from National University of Singapore (NUS). I am seeking full-time work opportunities in computing related fields starting from May 2022.

About me
My passion for computing began in junior college where I first learnt web and android development in Tech Council CCA. I was selected to become the Vice-President of the CCA and I have organized a hackathon for the school. I enjoyed working with my CCA friends to tackle problems by building web-based solutions for the school. While I enjoyed software development, I also wanted to learn how computers work on a low level and this led me to where I am now, pursuing a bachelors in Computer Engineering.

Now, my main interest is software development as it gives me a sense of accomplishment when I see the finished project. I feel that it empowers me to create solutions to various problems and allows me to make a difference. However, I'm also actively exploring other fields of computing such as data analytics and cyber security to quench my interest and expand my knowledge base. As such, I'm keen in seeking opportunities that will challenge me and teach me new skills.

Technical Skills
I am well versed in both hardware and software engineering. I have worked on countless software projects. I'm familiar with Node.js, PostgreSQL, React, Angular, JavaScript for web development. I have developed several android applications with Java/Kotlin in Android Studio (and briefly with React Native) and one of my application has more than 500 downloads on the Playstore. I have used JavaFX to create desktop applications and in my software projects, I have learnt to adopt good software engineering principles such as using appropriate design patterns, version controlling and writing clear and concise documentation.

I have worked extensively on hardware projects as well with Arduino, Raspberry Pi, RPLiDAR, Basys3 and Cortex M3. I have a basic understanding of computer architecture and I'm comfortable with working with languages such as Verilog, Arduino, bare metal C++, FreeRTOS and Assembly.

Recently, I have started to explore artificial intelligence, data analytics, web application security and cloud technology to broaden my knowledge. I have implemented AI algorithms such as A* search, AC-3 and Reinforcement learning in python to solve 8-puzzle, Sudoku and Pacman respectively. I'm learning machine learning libraries such as Tensorflow, Scikit-learn, and working on projects to hone my data analytics skill set.

Work Experience

After a year in Computer Engineering, I joined my friends in founding an edutech startup named CoduE. We wanted to create an autonomous E-Learning platform to introduce programming to kids as young as 9 to 14 years old. We went on to win the I&E Practicum@SOC award and with the 10k grant we kick started our development. Initially, I was in charge of the content creation for our platform. However, being part of a small startup also required me to play all sorts of other roles such as marketing, digital content creation, search engine optimization and software development which I enjoyed the most.

While in NUS, I've also worked as Teaching Assistant (TA) for two modules (CS2113 and CP2106) which focused on Software Engineering. This opportunity enabled me to reinforce best software engineering practices and also oversee and guide numerous (total of more than 20) self-initiated projects from students. I enjoyed teaching, discussing these concepts with students (opening my mind to their approaches) and eventually see their projects come to life.

For my Advanced Technology Attachment Program (ATAP), I was very fortunate to be offered an internship as a Software Engineer at Shopee in the Android Team for 8 months. At Shopee, I've been working on several projects that are aimed at solving problems the Android Team face. I enjoy the rigor and speed demanded of Software Engineers which enabled me to work with multiple frameworks and tight deadlines. I'm looking forward to such challenging work opportunities that enable me to learn and grow technically as well as make real impact.

Education

Aug 2018 – May 2022 **National University of Singapore**
Bachelor of Engineering (Honors) in Computer Engineering
with Minor in Financial Mathematics
CAP: 4.49/5.0
(Course details in Appendix A)

Jan 2014 - Dec 2015 **Anglo-Chinese Junior College**
- GCSE A Levels. Subjects: H2 Physics, H2 Chemistry, H2 Mathematics, H2 Economics, H1 Project Work, H1 General Paper

Co-Curricular Activities

Aug 2020 – Present **Blockchain Developer, NUS FinTech Society**
- Developed level up and revive feature for *Puppies Attack* game on test Ethereum blockchain network using solidity.
- Developed min/max and Bollinger bands strategies over a custom period for various cryptocurrency pairs to find optimal range to provide liquidity in Uniswap V3. Implemented this in React.

Work Experience

Dec 2020 – Present **Shopee**
Software Engineer Intern (Android Team)
- Developed tool to optimize resources during android build process which reduced Shopee APK size by more than 10MB.
- Developed dependency conflict detection tool to help android developers identify unexpected dependency version changes before production.
- Developed App Update Manager program for Android and iOS developers to efficiently manage update actions for the various different app versions rolled out in various different app stores.
- Performed experiments and developed additional internal features to simulate slow network traffic and slow storage during testing phase.

May 2021 – Present **National University of Singapore (NUS)**
Senior Advisor – CP2106 Independent Software Development Project
- Selected by professor to be a Senior Advisor for the module following my performance as an Advisor for the same module in the previous year
- Supervised and guided 15 high level teams to complete their self-initiated software project during summer
- Evaluated every team's progress for 3 milestones and ensured they adhered to best software engineering practices

Aug 2020 – Nov 2020 **National University of Singapore (NUS)**
Teaching Assistant for CS2113 (Software Engineering)
- Conducted tutorials on Object-Oriented Programming & Software Engineering Principles to 10 undergraduates
- Performed code reviews for teams and assisted professor in evaluating students' projects and facilitating final examinations

Aug 2019 – Present **CoduE**
Co-founder
- Developed entire education content, designed novel pedagogy from scratch to introduce programming to young children
- Integrated a multiplayer 2D game with the main education platform and database
- Performing integration and system testing to ensure game platform works seamlessly with the main platform

Computing Projects

Sept 2020 **Computer Engineering Capstone – Dance!**

- Project involved using raw live Bluno sensor data from 3 dancers to predict their instantaneous dance moves and relative positions
- Designed the external communication subsystem from ground up using python sockets and SSH tunnels to communicate reliably and securely between laptops, remote Ultra96 FPGA and servers
- Implemented time synchronization protocols with NTP across remote laptops to determine delays between dancers accurately

Apr 2020 **AI Algorithms to solve 8-Puzzle, Sudoku, Pacman**

- Implemented A* search with Euclidean distance and linear conflicts as heuristics to solve 8-puzzle game
- Implemented both AC3 and forward checking algorithms to solve Sudoku puzzles and compared their efficiencies
- Implemented reinforcement learning to train Pacman to win

Nov 2019 **Mock Carpool Web Application**

- Developed a mock carpooling system using node.js with relational database implemented with PostgreSQL
- Allowed drivers to advertise rides and passengers to bid for rides
- Implemented inbox to allow for drivers and passengers to communicate
- Implemented priority matching of passengers and drivers with common song preference

Nov 2019 **Ducats – Music Theory Education App**

- Worked in a team of 5 to develop CLI application in Java to allow amateurs to learn music theory
- Programmed the display for sheet music and allowed users to group and overlay parts of music they write
- Performed extensive software testing with JUnit

Aug 2019 **Parkevelution – One stop solution to all your parking problems**

- Developed an android application that provides real time parking lot availability, parking rates and nearest carparks to a location
- Also recommends carpark based on different parameters and predicts future lot availability based on historical data that's stored on a database hosted on a Raspberry Pi Server
- Available on Playstore

March 2019 **Basys3 Audio Visualizer**

- Programmed a Basys3 FPGA in Verilog to visualize audio in 10 different ways with the ability to mix and overlay different visualizations
- Programmed moving text on 7SEG display corresponding to audio intensity
- Developed a simple space battle game playable voice intensity

March 2019 **Remote Operated Search and Rescue Robot**

- Built a search and rescue robot with Arduino, Raspberry Pi, RPLiDAR
- Built and calibrated IR and color sensor circuits
- Wrote packet transfer codes for communication between Arduino and Raspberry Pi in C++

Nov 2018 **mBot Maze Navigator**

- Programmed an mBot in Arduino to navigate and sense obstacles in a maze
- Built and calibrated color detection circuit with LDR
- Built low pass and band pass filters with op-amps to distinguish low and high frequency sounds.

Skill Sets & Proficiency

Programming Languages	Python	Proficient
	Java	Proficient
	C	Proficient
	C++	Proficient
	JavaScript	Proficient
	Verilog	Intermediate
	FreeRTOS	Intermediate
	Kotlin	Intermediate
	Solidity (Blockchain)	Basic
Data Analytics/ Machine Learning	Pandas	Intermediate
	Tensorflow	Basic
	Scikit-learn	Basic
Web	HTML5	Proficient
	CSS	Intermediate
	Node.js	Intermediate
	React	Intermediate
	Angular	Intermediate
	PostgreSQL	Proficient
	Bootstrap	Intermediate
Testing	Junit	Intermediate
	Selenium	Basic
Hardware	Raspberry Pi	Intermediate
	Arduino	Proficient
	Cortex-M3	Basic
	Basys3	Intermediate
Others	Git	Proficient
	Linux	Intermediate
	Android Studio	Proficient
	MS Office	Proficient
	Adobe Photoshop	Intermediate
	Adobe Premiere Pro	Intermediate
	Adobe After Effects	Intermediate
	Unity Game Engine	Basic
Written and Spoken Languages	English	Fluent
	Tamil	Fluent

APPENDIX A

Degree: Bachelor of Engineering (Honours) in Computer Engineering
Minor in Financial Mathematics
Cumulative Average Point: 4.49 / 5.00

Category	Course Description	Grades
Computing Fundamentals	Programming Methodology	A-
	Programming Methodology II	A-
	Effective Communication for Computing Professionals	S
Engineering Fundamentals	Engineering Principles and Practice I	A-
	Engineering Principles and Practice II	A-
	Engineering Professionalism	A-
Software Development	Software Engineering & Object-Oriented Programming ^	A
	Independent Software Development Project (Orbital)	CS
	Database Systems	B
Capstone	Computer Engineering Capstone Project	A-
Networking	Computer Networks	A
Algorithm and Theory	Discrete Structures	A-
	Data Structures and Algorithms	B
	Design and Analysis of Algorithms	B
Computer Organization and Architecture	Digital Design	A
	Real-Time Operating Systems	A
	Transistor-Level Digital Circuits	A
	Computer Organization	A-
	Signals and Systems	A-
Artificial Intelligence	Introduction to Artificial Intelligence	S
	Introduction to Machine Learning with Python	CS
Game Development	Introduction to Game Development with Unity	CS
Mathematics	Engineering Calculus	A-
	Differential Equations for Engineering	A-
	Linear Algebra for Engineering	A
	Probability and Statistics	A-
Financial Mathematics Minor	Mathematical Finance I	B+
Electives	Living with Mathematics	A-
	Quantitative Reasoning	B+
	Asking Questions	CS
	Cyber Security	A
	Managing Singapore's Built Environment	A
	Leading High Performing Teams	CS

NUS Grading Scale:

A+ & A (5.0); A- (4.5); B+ (4.0); B (3.5); B- (3.0); C+ (2.5); C (2.0); D+ (1.5); D (1.0); F (0)

S = Satisfactory; U = Unsatisfactory

CS = Completed Satisfactorily; CU = Completed Unsatisfactorily

EXE = Exempted; IC = Incomplete; IP = In Progress; W =Withdrawn