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Personal Statement

My first foray into programming was making mods for games. *Little Fighter 2*, *CS2D* and *Garry's Mod* allowed users to write extensions using various programming languages, ranging from Turing incomplete domain-specific languages to commonly-used scripting runtimes such as Lua, and appealed to my imagination. I became interested in game development and soon went on to create my own games and game engines.

More recently, in Oct 2017, I led the front-end development for an iOS, and Android app called Pear (github.com/Pear-App/pear-client), which targets shy singles and help them get on dating platforms by allowing their friends to match-make them. Pear won the 2nd prize in National University of Singapore's (NUS) School of Computing Term Project Showcase, where students present their projects they have completed during the semester. I wrote the progressive web application with Vue, and wrapped it with Cordova into the iOS and Android applications. While developing Pear, I also published vue-swing (www.npmjs.com/package/vue-swing), a Vue component used in Pear.

Concurrently, I also worked on a freelance project and created a cryptocurrency mining analytics dashboard for our client to visualize the health of their miners and easily troubleshoot problems. I designed and built the front-end as a progressive web application using Vue. As it was a commissioned project requiring high-quality code, we followed Test-Driven Development and wrote extensive tests.

In my internship with Government Technology Agency of Singapore (GovTech) during Dec 2017, I wrote public API endpoints for the Data.gov.sg developer portal. From several differently structured carpark availability data sources, I designed a schema in AWS DynamoDB and wrote scrapers to fetch and combine them into a unified format for archiving. The scraper and endpoints were written in Node.js, deployed with AWS Lambda and published using AWS API Gateway.

While at GovTech, I also debugged a slow-running Node.js script. The running length of the script exceeded the five-minute time limit allowed by AWS Lambda, so it was run on the more expensive EC2 even though it was only occasionally run. I was tasked to benchmark and profile the script to find the slow parts and speed it up. Since the bottleneck in the script was a function verifying input correctness, which was too important to forgo, I documented the findings for future reference. This taught me how the V8 JavaScript engine manages memory and garbage collection.

As a student in the National University of Singapore, I am interested in modern programming languages, functional programming, and compiler design, and am currently working towards a specialization in Programming Languages. I have also taken several courses in Artificial Intelligence, as I feel it has a huge potential in this world of big data.

In my internship, I can use my experience in software engineering and product design and development to solve difficult problems and build meaningful products for businesses and customers. I hope to learn how startups use modern technology stacks to face difficult software engineering problems.

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Experience

National University of Singapore, *Undergraduate Teaching Assistant* — Jan 2017 - Present
Taught CS2103T Software Engineering (Spring 18)
Reviewed pull requests from students to encourage good software engineering practices.

Government Technology Agency of Singapore (GovTech), *Data Engineer Intern* — Dec 2017 - Jan 2018
Implemented and released public APIs for Data.gov.sg portal using Node.js with AWS Lambda and DynamoDB.
Minimized AWS Lambda costs by benchmarking, profiling and optimizing slow-running Node.js scripts.
Developed and deployed SMS-based medicine reminder solution targeted at middle-aged users.

Ethereum Tech, *Freelance Web Developer* — Oct 2017 - Dec 2017
Created the front-end of a cryptocurrency mining analytics dashboard with Vue.js.
Suggested and implemented improvements to user experience from client's original design.

Ministry of Defence (Singapore), *Personnel Systems Analyst* — Dec 2014 - Aug 2016
Simulated and analysed personnel movement using complex system dynamics simulations.
Wrote VBA macros and SQL queries for Microsoft Access, Excel and Word.

Alpha Consulting Engineers Private Limited, *System Administrator* — Mar 2014 - Jul 2014
Administered Windows servers and clients using IIS and Active Directory.
Redesigned homepage using HTML5, CSS and JavaScript.
Implemented features in the intranet page using jQuery, PHP and MariaDB/MySQL.
Decompiled and modified legacy JavaServer Pages application.

Education

National University of Singapore — Aug 2016 - Present
Bachelor of Computing in Computer Science. GPA: 4.70/5.00 (First Class Honours)

Projects

Pear — Oct 2017 - Nov 2017
Progressive Web App (PWA), iOS and Android app where users matchmake their friends.
Led front-end development using Vue.js and Cordova.
Released app to iOS App Store and Google Play Store, hit 300 users within 24 hours.
Source: github.com/Pear-App/pear-client, Info: 11th STePS submission

collaborate! — Jun 2017 - Aug 2017
Real-time collaborative webapp that simulates a table top discussion.
Led front-end development using React + Redux and Socket.io.
Wrote and deployed back-end using Node.js and Koa.
Source: github.com/goweiwen/collaborate, Demo: collaborate-app.herokuapp.com

vue-swing — Oct 2017 - Present
Vue.js component for swiping cards left and right, as seen in apps like Jelly and Tinder.
Published on NPM and actively maintained.
Source: github.com/goweiwen/vue-swing

ivle-sync — Aug 2016 - Present
Automatically downloads files, announcements and webcasts from NUS's IVLE portal.
Created and maintained application built in Python 3.
Source: github.com/goweiwen/ivle-sync

Awards

Yale-NUS Data 2.0 Datathon, *First Place* — Mar 2018
Studied viability of ride sharing in Singapore compared to public transport regarding carbon emissions using R.

NUS 11th School of Computing Term Project Showcase (11th STePS), *Second Place* — Nov 2017
Pear won 2nd prize in NUS's 11th STePS for CS3216 Software Product Engineering for Digital Markets.

NUS Orbital Programme 2017 (Apollo 11), *Honorable Mention* — Sep 2017
collaborate! won an honorable mention in the advanced category of NUS School of Computing's Orbital 2017.

FOSSASIA 2017 Microsoft Mission Mars Challenge, *Second Prize* — Mar 2017

DMG Excellence Award (Individual) — Mar 2016
Awarded by the Defence Management Group to individuals who have displayed exemplary attitude towards work.

Skills

Languages: Python JavaScript HTML/CSS Haskell Golang Kotlin Scala Ruby Java PHP SQL
Front-end: Vue.js React.js Elm Angular jQuery Vanilla JS
Back-end: Node.js Express/Koa Django Flask Golang Ruby on Rails Laravel PHP
Data Science: NumPy Pandas R Keras TensorFlow

Degree: Bachelor of Computing (Honours) in Computer Science
Cumulative Average Point: 4.70 / 5.00

Year	Level	Course Description	Grades
Aug – Nov 2016	Year 1/Semester 1	Data Structures and Algorithms I	A
		Discrete Structures	A
		Quantitative Reasoning	A-
		Linear Algebra I	A-
		Calculus for Computing	S
Jan – May 2017	Year 1/Semester 2	Asking Questions	CS
		Logic	S
		Data Structures and Algorithms II	A
		Computer Organization	A
		Fundamentals of Physics II	A
		Probability	A-
Aug – Nov 2017	Year 2/Semester 1	Independent Software Development Project	CS
		Mathematical Statistics	B
		Machine Learning	A
		Effective Communication for Computing Professionals	B+
		Software Engineering	A
		Software Product Engineering for Digital Markets	A+
Jan – May 2018	Year 2/Semester 2	Drugs and Society	In-progress
		Communicating in the Information Age	In-progress
		Introduction to Artificial Intelligence	In Progress
		Introduction to Operating Systems	In Progress
		Design and Analysis of Algorithms	In Progress
		Logic and Formal Systems	In Progress

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