Kai Yi Pang

Mobile No: 8118 4639
Email Address: pang.kaiyi@u.nus.edu

Personal Statement

Believe, persevere and persistent pursual is my mantra in life and I have learnt to develop this mindset through initiating multiple projects in life. I am creative and innovate individual who aspires to pursue my passion of creating a social impact on society for communities in need. I am also a leader in many projects that I have self-initiated, under school modules and outside of them. Through my experiences, I have gained valuable insights that have enabled me to grow to have a confident entrepreneurial mindset in strongly wanting to contribute back to society.

The most impactful experience for me would be starting out Wave: a computer application that uses hand gestures inputs to control our augmentative and alternative communication (AAC) software for people with cerebral palsy. I am the project manager and software developer that oversees the overall projection of the project while working on building the software application for Wave.

As a project manager, I had to plan the overall timeline of Wave and initiate various ways to push our project to the market. As an outcome of doing so, my project was awarded the NUS Enterprise grant of $10,000 that has allowed my team to build various prototypes before achieving Wave to be the ideal solution. Another example would be our partner with Cerebral Palsy Alliance Singapore (CPAS). Through our partnership with them, we can test out prototypes of Wave with their students and adopt our product according to their needs. Through these initiations, they have helped me to become a forward-thinking manager to forecast the needs for my team to work on the project and source for them. As a software developer, I work on the backend to develop the algorithm for the AAC software that enables them to autocomplete sentences based on the least number of keywords as possible. I am using C# programming and Unity packages to produce the best possible inputs to feed into an API package that generates autocomplete sentences for CPAS students. Further developments will be to develop the API model with machine learning from these students.

My experiences have provided me great insights about myself that are good and need to work on. I am capable of taking on several hats for the different aspects of the project such as electrical, mechanical and computer engineering. I am a versatile and fast learner who is open to adapt to the various needs of the situation as required, even without being told. This project has strongly demonstrated to me the large capacity I can take on. While my project has shown strong potential through our various partners that we have approached and expressed strong conviction in our idea, I lack the technical skills to speed up the project and meet to our partners' expectation and great passion to purchase the product right away. Sometimes, the timeline I projected is held back by my own technical difficulties. However, my team is made up of people with various engineering backgrounds and this helps me to overcome this issue through complementing of each other skillsets.

As such, I am embarking this internship with several objectives in mind. With a keen interest towards full stack development. I want to expand my array of programming languages that provides me with the skillset to build software from scratch. I also enjoy seeing the great capabilities that developed software can provide for users. Additionally, due to being able to have end-to-end visibility, I am able to better understand how a business should be created. It also enables me to facilitate transitioning between frontend and backend engineers with the potential to help both as required. I hope that this job scope enables me to become a better technopreneur.

Stretching myself beyond my comfort zone and strong commitments to a job are characteristics I value greatly as I believe great opportunities do not come by easily. Through my interactions with my peers, passion is my strongest suite in helping me to stay committed in delivering a task to completion. I hold myself with great responsibility to the company and myself in delivering deadlines over deadlines. I believe that this internship will provide me with the necessary training for myself and to make a significant contribution to your team.

EDUCATION

National University of Singapore *Aug 2020 – Present*

- Bachelor of Electrical Engineering (Hons) with 2nd Major in Innovation and Design Programme (IDP)

Tampines Junior College *Jan 2016 - Feb 2018*

A Level

- Major in Science, PCME (Physics, Chemistry, Math, Economics)

WORK EXPERIENCE

Allied Container (E&M) Private Limited *Oct 2022 – Present*

Web Developer Intern

- Develop website in HTML, Bootstrap and Meta Tagging
- Usage of wireframing and design for site in PSD
- Integrate frontend with backend using PHP

Keysight Technologies: Automation of Black Box Testing Project *May 2022 – Jul 2022*

Software R&D Engineer

- Automated workflows of In-Circuit testing for their i3070 machines
- Programmed test automation scripts based on required test plans to ensure product meets internal quality requirements
- Concurrently managed 2nd Project on 'FPGA Design and Board Test' to replace an old Integrated Circuit (IC) while ensuring specifications of the new IC is suitable using an oscilloscope

PROJECTS

NUS EG3301R: Wave *Jan 2022 – Present*

CEO/Software Developer

- Partnering with Cerebral Palsy Alliance Singapore (CPAS) to help children with cerebral palsy better communicate physically and online on social media platforms
- Applied the design thinking framework that helped improve the accuracy in identifying the communication problem faced by children with cerebral palsy
- Employed Unity software, AR Tech to implement Natural Language Processing (NLP) for AutoComplete sentences in their speeches

NUS EG2301: Wheel-Me-No-More *Aug 2021 – Nov 2021*

Product Designer

- Invented and fabricated a modified 3D wheelchair to improve the safety of wheelchair users moving downslope
- Utilised the rack and pinion mechanism to shift the wheelchair's centre of gravity, reducing the likelihood of it tilting forward
- Recognised and awarded an A+ grade for this module

Laundry Telegram Bot *May 2021 – Jun 2021*

Project Lead and Software Developer

- Initiated and developed a laundry Telegram bot utilising Python programming and hosted it on Heroku Serverless Cloud
- End-to-End Development included iterations of testing to optimisation, resulting in 24/7 live updates of laundry machines
- Reduced inefficiencies for 120 residents in NUS College of Alice and Peter Tan
- Collected positive feedback from 30 residents who highlighted an average save of 3-4 times climbing stairs, equating to 1 hour spent on doing laundry weekly

NUS EG2310: Autonomous Robot System *Jan 2021 – May 2021*

Electrical Circuit Designer and Programmer

- Built a TurtleBot3, operating on ROS, that can autonomously navigate and map through a maze
- Independently identified, aimed and fired a ping pong ball projectile at a thermal target
- Designed electrical circuits and programmed coding firing mechanism on Linus OS

CO-CURRICULAR ACTIVITIES

Community Engagement: Guiding our Last Goodbyes (Morticians) *Dec 2021 – Mar 2022*

Trail Leader

- Directed an experiential trail for a group of 25 students with The Life Celebrant to understand the journey of Morticians
- Prepared hands-on programs and activities to experience the work of morticians
- Mediated discussion questions between students and morticians on the topic of post-death

Pasir Ris Silver Circle *Aug 2016 - Aug 2016*

VIA Coordinator

- Directed 15 CCA members in program execution, logistics management, resulting in a well-planned and enjoyable experience with 30 elderlies

AWARDS AND HONORS

Keysight Hackathon 2022 *May 2022 – Jul 2022*

Participant

- Completed a 48hrs Hackathon to improve Keysight's In-Circuit Testing (ICT) products
- Attained 1st place for 'Most Impactful Idea' and received a prize of $600 voucher

Singapore Amazing Flying Machine Competition (SAFMC), Singapore *Jun 2015 – Dec 2015*

Participant

- Competed in a team of 3 to design a lightweight aircraft made of household materials
- Represented St. Andrew Secondary School to win 2nd Placing nationwide

CERIFICATION

- GICT Certified Internet of Things Professional *Jul 2020*
- GICT Certified Machine Learning Specialist *May 2020*
- Google Ads Display Certificate *Apr 2020*
- Wiley Certified Data Analyst *Mar 2020*

SKILL SETS & PROFICIENCY

Web Development	HTML & CSS	Intermediate
	WordPress	Intermediate
	AWS	Basic
Programming	Python	Proficient
	C	Intermediate
	C#	Basic
	Arduino	Intermediate
	Eggplant Functional	Proficient
	Advanced RISC Machine (ARM)	Proficient
Hardware Description Language	Verilog	Intermediate
Operating System	Windows	Proficient
	Linux	Proficient
	ROS	Proficient
Software	Autodesk Fusion 360	Intermediate
	Autodesk Inventor Professional	Intermediate
	Telegram Bot	Proficient
	Unity	Intermediate
	Radiant in R (Data Visualisation Tool)	Proficient
Microcontroller Unit (MCU)	Raspberry Pi	Proficient
	Arduino	Proficient
	ESP32	Proficient
Multimedia	Davinci Resolve	Proficient
	Ableton Live	Proficient
	Studio One	Proficient
Office Productivity	Microsoft Word, PowerPoint, Excel	Proficient
Non-Technical Skills	Leadership, Teamwork, Interpersonal skills, problem solving, public speaking, self-motivated, flexible, creative, detail-oriented	Proficient

ADDITIONAL INFORMATION

Musician	Piano, Guitar, Drums
Sports	Table Tennis, Volleyball, Basketball

LANGUAGE PROFICIENCY

English	Spoken & Written	Competent
Mandarin	Spoken & Written	Moderate

APPENDIX A

Degree: Electrical Engineering (Hons) with 2nd Major in Innovation Design Programme (IDP)
Cumulative Average Point: 3.66/5

Year	Sem	Module Code	Course Name	Grade
1	1	MA1511	Engineering Calculus	B
1	1	MA1512	Differential Equations for Engineering	A-
1	1	CS1010E	Programming Methodology	B
1	1	EE1111A	Electrical Engineering Principles and Practices I	B+
1	1	EG1311	Design and Make	A
1	1	UTC1404	JR Sem: Power and Ideas	CS
1	2	EE2026	Digital Design	B-
1	2	EE2028A	C Programming	B
1	2	EE2111A	Electrical Engineering Principles and Practices II	B
1	2	EG2310	Fundamentals of System Design	B-
1	2	MA1508E	Linear Algebra for Engineering	B
1	2	MLE1010	Materials Engineering Principles & Practices	S
1	2	UTW1001A	Identities and Ideas in Modern Market-Driven Societies	B
2	1	EE2012A	Analytical Methods in Electrical and Computer Engineering	B
2	1	EE2027	Electronic Circuits	A-
2	1	EE2028	Microcontroller Programming and Interfacing	B
2	1	EG2301	Case Studies in Innovation	B+
2	1	IE2141	Systems Thinking and Dynamics	A
2	1	UTW2001M	Sport and Socialisation	CS
2	5	EE2023	Signals and Systems	C+
2	5	EE2029	Introduction to Electrical Energy Systems	B
2	5	PC2020	Electromagnetics for Electrical Engineers	B+
2	5	UTC2414	Stakeholders: Community Engagement as a Sum of Diverse Parts	B
2	5	UTS2409	Mental wellness: Local and global approaches	B+
2	5	EG3301R	DCP Project	IP
3	6	EG3301R	DCP Project	IP
3	6	EE2033	Integrated System Lab	IP
3	6	GEA1000	Quantitative Reasoning with Data	IP
3	6	EE2211	Introduction to Machine Learning	IP

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

APPENDIX B

Keysight Technologies
Singapore (Sales) Pte Ltd
1 Yishun Avenue 7
Singapore 768923

www.keysight.com

KEYSIGHT TECHNOLOGIES

Pang Kai Yi
331 Tampines Street 32
#06-450
Singapore 520331

27 July 2022

To Whom It May Concern:

This is to introduce Mr. Pang Kai Yi (Software R&D Engineer – Internship) to his future employer.

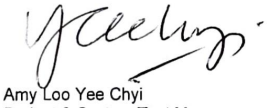
Kai Yi is a third-year under-graduate student from Electrical Engineering faculty, National University of Singapore. He was hired as a Keysight R&D intern from May 9th to July 29th to develop automation of system level black box testing.

Kai Yi is a fine, highly motivated, and intelligent individual. He is a determined and enthusiastic learner, honest and responsible to his job. Thanks to his fluid mind, he is able to grasp, understand and apply the concepts shared by his supervisor and peers for the assignment despite lacking relevant industry experience and domain knowledge.

This intern has always displayed a sense of accountability, whereby he can be entrusted to perform task to his best ability. He also has demonstrated his mature problem solving skills and has successfully resolved many challenging and complex issues in the assignment. Overall, his performance in this internship has exceeded the team's expectation.

The team value his input and appreciates his contribution to our business and organization. I believe he will be a great asset to his future employer.

Sincerely,



Amy Loo Yee Chyi
Project & System Test Manager
Research & Development
Electronic Industrial Solutions Group
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College of Design and Engineering
Innovation and Design Programme

Date: 15th Aug 2022

RE: Recommendation letter for Mr Pang Kai Yi

I have known Kai Yi in the capacity of project supervisor for VR331, Augmented gauntlet - novel haptic gesture glove for machine interface, a EG3301R project where he is a key team memberworking along with 4 other students on a 2-semesters design capstone project. The project is offered by the Innovation and Design Programme.

Kai Yi's team uses design thinking methodology to identify the gaps in gesture interfaces for users with special needs. They have approached various stakeholders from the Muscular Dystrophy Association Singapore, Cerebral Palsy Alliance Singapore (CPAS) and NUHS in order to build user personas and translated user requirements into project specifications. His team has developed a few glove prototypes with useful features to validate the assumptions and problem-solution fit. Kai Yi has demonstrated strong leadership in project coordination and has contributed thoughtfully to the concept development and prototyping. His team has been award the $10k practicum grant. The project has a high potential of changing the way users interact with digital interfaces more intuitively.

Despite no prior training in gesture interfaces and Virtual and Augmented Reality technology, his inquisitive nature and analytical reasoning capability enabled him to familiarize with the problem space and issues in a short time. Evidently, he is resourceful in contacting users and project collaborators to understand their perspective and carry out research independently. I recognise Kai Yi's enthusiasm in innovation and entrepreneurship.

We need more engineers like him who is well versed in design and engineering, to push the boundary of innovation.

Feel free to contact me at etkhoo@nus.edu.sg if you have any questions. Thank you.

Sincerely,

Dr Khoo Eng Tat
Senior Lecturer
Innovation and Design Programme
NUS College of Design and Engineering