

# Kai Yi Pang

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Website Portfolio: <https://pangkaiyi.com>

## EDUCATION

### NUS Overseas Colleges – Silicon Valley

Jan 2023 - Dec 2023

Batch 43

- Year-long Internship/Entrepreneurship Courses in start-ups based in Silicon Valley

### National University of Singapore

Aug 2020 – Present

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

### College of Alice and Peter Tan (CAPT)

Aug 2020 – May 2022

University Town College Programme

- UTCP helps students develop effective communications, strong writing skills, critical thinking and intellectual breadth and rigour to tackle complex, inter-related challenges confronting the world today

## WORK EXPERIENCE

### Aviva Links

Jan 2023 – Current

AMS Designer

- Modelled MIPI C-PHY using Cadence Virtuoso Electronic Design Automation that involves circuit blocks of sampler, symbol decoder, Serial-In Parallel-Out, de-mapper and Clock Data Recovery using SystemVerilog and Verilog-AMS
- Converted Cadence Spectre schematics designs to Verilog-AMS to speed up overall simulations

Silicon Validation/Bringup

- Calibrated Phase Locked Loop at post silicon level using binary search algorithm and burn the settings into efuse for 100 chips to be sent to Honda and Valeo
- Created over 10 python automation testing scripts that uses oscilloscope, power supply, Thermoelectric coupling (TEC), signal generator and spectrum analyser with General Purpose Interface Bus (GPIB)

### 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 2<sup>nd</sup> 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

### Wave

Jan 2022 – Present

<https://wavesg.io>

CEO – Sales Lead and Product Manager

- As the CEO, co-founded a team of three individuals and expanded to include two dedicated team members to develop an Augmentative and Alternative Communication (AAC) application, with a focus on empowering the non-verbal community by providing a personalized voice
- Collaborating with Cerebral Palsy Alliance Singapore (CPAS) and Ability Now Bay Area to conduct market validation and gather product feedback from the non-verbal community, enhancing the project's impact and effectiveness.
- Leveraged product feedback to identify and integrate distinctive features into Wave's application, leading to the development of patentable product innovations and unique selling points
- Amassed a team of 6 internationally with people from Ukraine and PhD student from University of California Los Angeles

### KTH Royal Institute of Technology Pre-Incubator Program - Participant

Mar 2023 - Present

- Conducted market research, identified target customer segments and crafted business plan

**Wheel-Me-No-More**  
*Product Designer*

Aug 2021 – Nov 2021

- 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

**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

**CAPT: Arts Showcase 2022**

Aug 2022 – Feb 2022

*Sound Director, Musician for 2 bands*

- Sound Director: Managed preparations and set up for live-streaming & in-house sound mixing
- Musician: Performed as a drummer for 2 bands

**AWARDS AND HONORS****Wave - Samsung Solve for Tomorrow Singapore 2022**

Jun 2023

*2<sup>nd</sup> Place Winning Team*

- Awarded \$3,000 cash prize and Samsung products valued at up to \$7,000 in recognition of exceptional depth of thinking, technical expertise, and creative abilities.

**Wave - Venture Initiation Programme @ NUS Enterprise**

Jun 2022

*Grant Recipient*

- Awarded \$10,000 for our team to work on to determine if it can be turned into a real business

**CERTIFICATION**

- Mixed Signal Simulations using Spectre AMS Designer Mar 2023
- Cadence Certified Analog & Behavioural Modelling with Verilog-AMS Feb 2023
- GICT Certified Machine Learning Specialist May 2020
- Wiley Certified Data Analyst Mar 2020

## SKILL SETS & PROFICIENCY

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

## ADDITIONAL INFORMATION

<b>Musician</b>	Piano, Guitar, Drums
<b>Sports</b>	Table Tennis, Volleyball, Basketball

## LANGUAGE PROFICIENCY

<b>English</b>	Spoken & Written	Competent
<b>Mandarin</b>	Spoken & Written	Moderate

## APPENDIX A

**Degree:** Electrical Engineering (Hons) with 2<sup>nd</sup> Major in Innovation Design Programme (IDP)

**Cumulative Average Point:** 3.79/5

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	B+
3	6	EE2033	Integrated System Lab	B+
3	6	GEA1000	Quantitative Reasoning with Data	B+
3	6	EE2211	Introduction to Machine Learning	B+
3	7	TR3201N	Entrepreneurship Practicum	IP
3	7	TR3202N	Start-up Internship Programme	IP
3	7	TR3203N	Start-up Case Study & Analysis	IP
3	7	TR4049N	Seminars in Entrepreneurship – LEAN Startup: Market Validation	A

## 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](http://www.keysight.com)



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 9<sup>th</sup> to July 29<sup>th</sup> 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,

A handwritten signature in black ink, appearing to read "Yee Chyi".

Amy Loo Yee Chyi  
Project & System Test Manager  
Research & Development  
Electronic Industrial Solutions Group  
Email : [amy-yc.loo@keysight.com](mailto:amy-yc.loo@keysight.com)  
Tel : +65 6215 7186

Date: 15<sup>th</sup> 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 member working 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 awarded 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](mailto: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

October 2022

TO WHOM IT MAY CONCERN

**Letter of Recommendation for Pang Kai Yi**

Pang Kai Yi was a member of the College of Alice & Peter Tan (CAPT) from August 2020 to May 2022. As Senior Lecturer, Director of Student Life and Resident Fellow at CAPT, I have had the pleasure of teaching and mentoring him. Based on my interactions with him and observations of his participation in class and various capacities in the college, I commend Kai Yi as a highly committed and responsible student leader.

CAPT is a residential college that focuses on active citizenship and community engagement, and seeks to provide an environment of opportunities for personal growth, collaborative learning and community engagement, to nurture individuals who will make a positive impact on society. Kai Yi is one such individual who has made an impact on the college community and beyond. This was evident in the different activities where he participated as a member and leader in the college.

As his lecturer for the UTC2412/UTS2409 *Mental Wellness: Local and global approaches* module, I observed Kai Yi's passion for learning. This was evident in his participation in the classroom seminars and field trips. He was a very curious learner who listened attentively and asked critical questions. His sense of responsibility and commitment to learning was demonstrated by his timely submission of assignments and execution of responsibilities assigned in the module. He also demonstrated creativity and the ability to work well in a team in the field project where they produced an e-book that included a series of self-made TikTok videos on the role of caregivers of people with dementia.

Kai Yi also displayed his curiosity to learn by participating in out-of-classroom opportunities offered by the college, for example, the Community Engagement Festival (CE Fest for short – this is a flagship event of the college), where he served as the CE Fest Mortician *Trail Leader* and led his peers in engaging with the mortician community and learning about the topic of death. The curiosity to learn about hidden communities was seen in his participation as a CAPT in Silence *Mentor*, where he learnt Sign Language to engage with deaf students from Beatty Secondary School, and CAPT in the Dark *Member*, where he engaged with visually impaired students from Ahmad Ibrahim Secondary School.

Beyond the classroom, as a capable student who was able to strike a good balance between his studies and co-curricular activities, Kai Yi contributed significantly to the community through the numerous activities and leadership positions he held in CAPT: Arts Showcase and CAPT10 Concert (*Performer – played drums for various bands in the two major events*), Arts Showcase Sound *Director*, CAPTlife website (*helped to create the User Interface (UI) and contents of the website*), Telegram Laundry Bot (created it to solve the laundry issue for Dragon house, a neighbourhood of 120 residents), CAPT Freshman Orientation Camp *Orientation Group Leader*, to name a few. Many of these positions are highly sought after ones where students have to go through interviews to be selected. Kai Yi was selected in the different positions and proven to be a responsible leader who served with diligence and dedication.

I am confident this highly passionate young adult will be an asset to any community which has the privilege of having him as a member.

Yours faithfully



Wong Soon Fen  
Director of Student Life/Senior Lecturer