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Education

- Master of Nuclear Engineering and Management (TUNEM), Tsinghua University, China (Aug 2020 - present)
 - Granted Chinese Government Scholarship (CGS) with additional support from China General Nuclear Power Corporation (CGN) to study in the TUNEM program, China. GPA: 3.88/4.00.
- Bachelor of Electronics and Communication Engineering (EC), Sirindhorn International Institute of Technology (SIIT), Thammasat University, Thailand (Aug 2016 - May 2020)
 - Granted Young Scientist and Technologist Programme (YSTP), a full scholarship to study at SIIT from National Science and Technology Development Agency (NSTDA), Thailand. GPA: 4.00/4.00.

Achievements and Awards

- Thai-CERN collaboration program: one of the two engineering students selected to join CERN (2019).
- Airobic 2018: AI competition for the future banking system, 2nd place award (2018).
- SIIT Student Good Conduct Award: community service award, curriculum representative (2018).

Publications

- Phatham Loahavilai, Chayut Thanapirom, Patharakorn Rattanawan, Thawatchart Chulapakorn, Sirawit Yanwicharaporn, Cherdsak Kingkan, Kiattiwut Prasertsuk, and Natcha Cota, “*Rapid Deployment of Ultra-Wideband Indoor Positioning System*,” 2021 18th International Joint Conference on Computer Science and Software Engineering (JCSSE), Lampang, Thailand, June 30-July 3, 2021.
- Natcha Cota, Phatham Loahavilai, Sirawit Yanwicharaporn, Piyaphat Phukphan, Rungroj Jintamethasawat, Thawatchart Chulapakorn, Patharakorn Rattanawan, Cherdsak Kingkan, and Kiattiwut Prasertsuk, “*Quality Evaluation Method of 2D SLAM*,” 2021 18th International Joint Conference on Computer Science and Software Engineering (JCSSE), Lampang, Thailand, June 30-July 3, 2021.
- Phatham Loahavilai, Prapun Suksompong, and Chalie Charoenlarnopparut, “*Utilization of Distributed Computing in Exhaustive Search for Optimal Block Code*,” 2019 IEEE 4th International Conference on Communication and Information Systems (ICCIS), Wuhan, China, December 21-23, 2019, pp. 236-240.
- Phatham Loahavilai and Chalie Charoenlarnopparut, “*Project-based Learning in STEM Education: Analysis of physical pendulum using computer vision and digital image processing*,” 2018 International STEM Education Conference (iSTEM-Ed), Bangkok, Thailand, July 11-13, 2018, pp. T2-6 to T2-8.

Research Experiences

- Created battery backup capacity monitoring with hybrid ESP-NOW and LoRaWAN. (April 2021 - April 2022)
 - Master’s Degree Thesis, Professorate Senior Engineer Han Binbin and Assoc. Prof. Liu Xingnan
- Built an isolated filament power supply for Smith-Purcell Free Electron Laser (Jan 2020 - May 2020)
 - Research Assistant, with Terahertz Technology Research Team, NSTDA, Thailand.
- Explored optimal block code characteristics for efficient communication system (Aug 2019 - May 2020)
 - Senior Project, Asst. Dr. Prapun Suksompong and Assoc. Prof. Dr. Chalie Charoenlarnopparut.
- Made an application to screen pinguecula, pterygium and cataract patients (Oct 2018 - Apr 2019)
 - Software Developer, with Thammasat Eye Center, Thammasat Hospital, Thammasat University.
 - Use a phone camera with artificial intelligence and computer vision to screen the patients.
- Developed an antiscalant detection system in a power plant cooling system (Aug 2018 - Jun 2019).
 - Research Assistant, Assoc. Prof. Dr. Pakorn Opaprakasit and Asst. Prof. Dr. Paiboon Sreearunothai, the Center of Excellence in Materials and Plasma Technology (CoE M@P Tech), SIIT.
 - Apply neural-network with UV-VIS signals to detect and control cooling system antiscalants.
- Others: Constructed a complete solution for glaucoma classification (Thammasat Eye Center, Thammasat University Hospital, Oct 2017 - Apr 2019), Developed a banana ripeness detection tool (Asst. Prof. Dr. Paiboon Sreearunothai, CoE M@P Tech, Jun 2017 - Aug 2017), Sped up and created optical alignment algorithms (Assoc. Prof. Dr. Bunyarit Uyyanonvara, SIIT, Apr 2017 - Oct 2017).

Work Experiences

- Summer Student at CERN, Switzerland (Jun 2019 - Jul 2019)
 - Hardware-based image processing acceleration for optical readout of GEM-based detectors.
 - Experienced physics experiments, problem solving and multicultural working environment.
- Internship at ThaiGerTec Co., Ltd., Thailand (Jun 2018 - Aug 2018)
 - Developed a new automated system to turn off the air-conditioners during off-hour.
 - Learned project management, strengthened research skills, and utilized communication skills.

Commercial Projects

- Point-cloud and panorama (360 degrees view) visualization website, with custom post-processings (2021).
- Decawave Ultra-Wideband firmware coding: optimized filtering and surpassed specified accuracy (2021).
- Crafted a website from a given design that generates images from texts to be shared on social media (2020).
- Astronomy Olympiad (Samsen Center) website (samsenplanetarium.com, since 2015).

Voluntary Projects

- Audio system on Thammasat University trams for vision impaired people (since 2017).
- Documents downloader for SIIT Admission Department: saved >100 hours of repetitive work (2017).
- High school club selection website: for a centralized system and effective management of clubs (2016).
- Others: Authentication systems for SIIT internal use (2018), TEDxThammasatU management systems (2017).

Exchange Programs

- Sakura Exchange Program in Science: Real-World Game Programming (Osaka, Japan, Jun 2017)
 - Supported by the Japan Science and Technology Agency; conducted at Osaka Institute of Technology.
 - Programmed soccer robots, which involves robotic operating system and image processing.

Hosted Events

- SIIT Open House 2019: demonstrated software-defined radio that bridges digital and analog radios (2019).
- SIIT Open House 2018: created a low-cost education breadboard (<5 CNY) to simplify learning (2018).
- SIIT Innovation Club Robotic Workshop 2018: passed on robotic know-how to other SIIT students (2018).
- EC Demonstration: constructed an internet of things system to demonstrate freshmen students (2017).

Extracurricular Activities

- Mechatronics design of the pedestal tray for Wai-Kru (teacher) day: designed structures and electronics of swimming orca mascot (2017), the gears (symbol of SIIT) movement and lighting (2018).
- International Project-based Learning at SIIT: created ultra-natural photos (2018) and robot vision (2017).
- Others: TESA Topgun Rally (leading embedded system competition, 2018), Basic/Advanced Engineering for Automotive Course (NSTDA, Thailand, 2018), SIIT Hackathon (2018; 1st places: 2017 and 2016), Datathon (business hackathon, ThaiBev Co. Ltd., 2017), Thailand Open Hackathon (2nd place award: 2017), Thammasat University Freshmen Debate (2017), SIIT Kendo Club (2017), Thammasat Shooting Club (2016), Pre-Olympiad in Informatics Camp (high school, 2nd round: 2015).

Key Skills

- Software Development
 - Digital Image Processing and Artificial Intelligence: Python, OpenCV, Pytorch, TensorFlow
 - High Performance Website: PHP, HTML, Node.js, CSS, Javascript, MySQL, Redis
 - Miscellaneous: Bash Script (Linux), C, Cloud Server Development, Java, Visual Basic, VHDL
- Electronics
 - Microcontroller and Microprocessor: PIC, Atmega (Arduino), Raspberry Pi, FPGA
 - System Modeling and Computation: MATLAB
 - Circuitry: Analog and Digital Circuit Designs, SPICE and LogicWorks Programs, Soldering
- Linguistics
 - Native in Thai
 - Fluent in English
 - IELTS: Overall 7.5 (Listening: 8.0, Reading: 8.5, Writing: 6.5, Speaking: 6.0)
 - Equivalent TOEFL iBT: 102, TOEFL PBT: 607, CEFR: C1