Nuntipat Narkthong

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EDUCATION

Northeastern University — Boston, MA
Doctor of Philosophy in Computer Engineering — Jan 2023 - Present

King Mongkut's University of Technology Thonburi (KMUTT) — Bangkok, Thailand
Master of Engineering (Computer Engineering) — Jul 2015 - Mar 2020
Thesis: The Design and Implementation of an Image Processing Framework with a Graphical Programming Interface for Low-Ended FPGAs

King Mongkut's University of Technology Thonburi (KMUTT) — Bangkok, Thailand
Bachelor of Engineering (Computer Engineering) (First Class Honours) — May 2011 - Jun 2015

ACADEMIC POSITION

King Mongkut's University of Technology Thonburi (KMUTT) — Bangkok, Thailand
Researcher/Lecturer, Department of Computer Engineering — 2020 - 2022

Assumption Convent School — Bangkok, Thailand
Part-time Computer Science Teacher (Grade 10-11) — 2020 - 2022

Saint Francis Xavier Convent School — Bangkok, Thailand
Part-time Computer Science Teacher (Grade 10) — 2018 - 2020

INDUSTRIAL EXPERIENCE

Ingarage Assistive Technology Co., Ltd. — Bangkok, Thailand
CEO and Co-Founder — 2017 - Present

INTERNSHIP

Department of Electrical Engineering and Computer Science, Syracuse University — New York, USA
Research Intern at the Sensor Fusion Group under the supervision of Prof. Pramod K. Varshney — May 2014 - Aug 2014

HONORS AND AWARDS

International Awards

Grand Prize Winner and Plastics One Advanced Manufacturing Award — Virginia, USA
VT KnowledgeWorks Global Student Entrepreneurship Challenge 2015 (with teams from 14 countries) — Aug 2015

First Runner-up of the 8th Student Innovation Challenge — Singapore
International Convention on Rehabilitation Engineering and Assistive Technology (15 finalist teams from 6 countries) — Aug 2015

Silver Awards (First Runner-up) in Research and Development Category — Vientiane, Laos
ASEAN ICT Awards 2019 (AICTA 2019) (with teams from 10 countries) — Oct 2019

Second Runner-up and Best Innovation Award — Taipei, Taiwan
International ICT Innovative Services Contest 2015 (InnoServe 2015) (8 finalist teams from 6 countries) — Nov 2015

Merit Award in Inclusion & Community (Education) and Internet of Things Category — Guangzhou, China
Asia Pacific ICT Alliance Awards 2018 (APICTA 2018) (with teams from 15 countries) — Oct 2018

Asia Regional Finalists — Sydney, Australia
Microsoft Imagine Cup World Championship 2019 — Feb 2019

Thailand Representative in Creative Business Cup 2016 — Copenhagen, Denmark
Selected to be the only representative of Thailand to compete with team from 60 countries — Nov 2016

Excellent Oral Presentation — Xiamen, China
2019 IEEE 4th International Conference on Image, Vision and Computing (ICIVC) — Jul 2019

Advised Student Awards

First Prize Winner in the Life Style Category — Online / Washington, USA
Microsoft Imagine Cup World 2022 (open to student worldwide, 12 teams in the world final round) — May 2021

First Runner-up of the Global Student Innovation Challenge — Online / Hong Kong
International Convention on Rehabilitation Engineering and Assistive Technology (23 finalist teams) — Aug 2022

Local Competition (Thailand)

- First prize winner of Students with Solutions 2012 mobile application contest held by the United States Agency for International Development (USAID)
- First prize winner of Thailand ICT Awards 2019 in the Internet of Things category
- First prize winner of Thailand ICT Awards 2018 in the Education and the Internet of Things category
- First prize winner of Thailand ICT Awards 2016 in the Inclusion & Community category
- First prize winner of Thailand ICT Awards 2015 in the Tertiary Student Project category
- First prize winner of Microsoft Imagine Cup Thailand 2015 in the World Citizenship category
- First prize winner of Samart Innovation Awards 2015
- First runner-up of Falling Walls Lab Thailand 2018
- First runner-up of Thailand National Software Contest 2013
- Second runner-up of Thailand National Software Contest 2014

GRANTS AND FELLOWSHIPS

- **Technology and Innovation-Based Enterprise Development Fund (TED Fund)**   THB 1,900,000 (≈$60,000)
  Ministry of Science and Technology of Thailand   *2020-2021*
  Title: Maker Playground: automatic code generation for embedded and IoT device development from behavioral-based diagram

- **Innovation Hub - Ageing Society**   THB 865,650 (≈$28,000)
  Council of University Presidents Thailand   *2018-2019*
  Title: Visionear: smart glasses for assisting the visually impaired people

- **Research Gap Fund**   THB 779,250 (≈$25,000)
  Thailand National Science and Technology Development Agency (NSTDA)   *2017-2018*
  Title: Visionear: smart glasses for assisting the visually impaired people

- **NSTDA-University-Industry Research Collaboration (NUI-RC)**   THB 327,000 (≈$10,500)
  Thailand National Science and Technology Development Agency (NSTDA)   *2015-2017*
  Full fellowship for master's degree study (including tuition and stipend)

TEACHING EXPERIENCES

Undergraduate Courses (Main Instructor)
- Digital Electronics and Logic Design: (Fall 2021/2022) - *Video*
- Embedded System: (Spring 2021/2022) - *Video*
- Computer Architecture: (co-instructor with Dr.Jarturon Harnsomburana) (Spring 2022)

Teaching Assistance (at KMUTT, Thailand)
- Introduction to Computer Programming: (Fall 2015 with Dr.Sally E. Goldin)
- Algorithms and Data Structures: (Spring 2015 with Dr.Sally E. Goldin and Fall 2017 with Dr.Peerapon Siripongwutikorn)
- Circuits and Electronics for Computer Engineering: (Fall 2016 with Asst.Prof.Sanan Srakaew)
- Digital Systems Design: (Spring 2016 with Asst.Prof.Sanan Srakaew)
- Computer Architectures and Systems: (Fall 2015 with Dr.Tiranee Achalakul and Spring 2017 with Dr.Stephen John Turner)

OPEN-SOURCE AND COMMERCIAL PROJECTS

Maker Playground: embedded & IoT IDE with behavioral-based diagram and automatic code generator
- Role: Project Leader   *https://github.com/MakerPlayground/MakerPlayground*
  Media Coverage: *BangkokPost, Thai News Agency MCOT, Workshop for G6-12 Student (YouTube)*

Visionear: image-recognition-enabled smart glasses for the visually impaired people
- Role: Project Leader
  Media Coverage: *The Nation Thailand, Virginia Tech Corporate Research Center, Live Presentation (YouTube)*

Log Meter: automatic timber classification using smartphone and IP camera
- Role: Project Leader   *App Store, Google Play*
  Funded and deployed in 8 of SCG Packaging's factories, a leading multinational consumer packaging solutions provider

FloodFinder: crowd-sourced real-time flood monitoring application using smartphone camera
- Role: Project Leader
  Media Coverage: *U.S. Agency for International Development, GSM Association*

JustSigns: web application for generating real-time 3D Thai sign language captions from video subtitles
- Role: Advisor
  Media Coverage: *The Nation Thailand, TECH PLANTER*

jSerialComm: platform-independent serial port access library for Java
- Role: Contributor (contributing support for Apple Silicon architecture)   *https://github.com/Fazecast/jSerialComm*

PUBLICATIONS

Book

- **N. Narkthong** and K. Sriratanaban, "Building Microcontroller Project with Maker Playground and Arduino Hardware", Innovative Experiment Co., Ltd., 2020 (published in Thai) - *Website*

Papers

- **N. Narkthong**, S. Duan, S. Ren, and X. Xu, "MicroVSA: An Ultra-Lightweight Vector Symbolic Architecture-based Classifier Library for Always-On Inference on Tiny Microcontrollers", in Proceedings of the 29th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS '24), Volume 2, La Jolla, CA, USA, 2024, pp. 730–745. - *Paper*, *Code*

- **N. Narkthong**, C. Jariyavajee, and X. Xu, "ALLI/O Diagram: An Action-based Visual Programming Language for Embedded System", in 2024 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), 2024, pp. 211–216. - *Paper*

SERVICE TO PROFESSION

Artifact evaluation committee

- International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS) 2025
- International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA) 2025
- Conference on Programming Language Design and Implementation (PLDI) 2024
- European Conference on Object-Oriented Programming (ECOOP) 2024

RESEARCH INTERESTS

- FPGAs and reconfigurable computing
- Computer architecture
- Embedded systems