

CURRICULUM VITAE

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RESEARCH INTERESTS

Indoor Localization, Computer Vision for Smart Agriculture, AI, Precision Agriculture,
Smart Aquaculture, Underwater Acoustic Networks, Wireless Sensor Networks, Ad Hoc
Wireless Networks

EDUCATION

- | | |
|--|---------------|
| National University of Singapore, Singapore | 08/05 – 04/11 |
| ▪ Ph.D. in Electrical Engineering | |
| University of Pittsburgh, Pittsburgh, PA | 08/00 – 04/02 |
| ▪ M.S. in Telecommunication Engineering | |
| Suranaree University of Technology, Thailand | 05/95 – 04/99 |
| ▪ B.E. in Telecommunication Engineering | |
| Graduated with University Second Class Honor | |

PROJECTS AND RESEARCH

PROJECTS

- **Project Manager:** Development of Thailand information system for water resource registration
[Status: Completed in 2020, Employed by: Office of the National Water Resources]
- **Project Manager:** Development of Thailand information system for water user organization and water user registration
[Status: Completed in 2020, Employed by: Office of the National Water Resources]
- **Project Manager:** Software design and development for SCG engineering system work project
[Status: Completed in 2018, Employed by: SCG Packaging Public Company Limited]
- **Assistant Project Manager:** Time attendance system design and development
[Status: Completed in 2014, Employed by: NEC Corporation (Thailand) Limited]

RESEARCHES

- Design and development of an UWB-based indoor positioning system to enhance the efficiency in manufacturing process
[Status: Ongoing, Funding Source: National Research Council of Thailand (NRCT) and National Telecom]
- Feasibility study of determining the daily feed amount from the detected shrimp weight data using deep learning technique
[Status: Completed in 2023, Funding Source: National Research Council of Thailand (NRCT)]
- Efficiency improvement in shrimp farm management using smart farming and artificial intelligent technology
[Status: Completed in 2021, Funding Source: Thailand Science Research and Innovation (TSRI)]
- A development of an extension board and a library on Arduino platform for water quality monitoring
[Status: Completed in 2020, Funding Source: National Research Council of Thailand (NRCT)]
- The Development of an IP public address system and IP speaker with Raspberry Pi
[Status: Complete in 2017, Funding Source: Talent Mobility Project, Office of the Higher Education Commission]
- The Development and Utilization Study of an Intelligent Integrated Macrobrachium Rosenbergii and White Shrimp Farming using a Wireless Sensor System (phase 2)
[Status: Complete in 2017, Funding Source: National Science and Technology Development Agency (NSTDA)]
- Development of a Wireless Sensor Mote Platform and Prototype for Water Quality Monitoring for Aquaculture
[Status: Complete in 2017, Funding Source: National Research Council of Thailand (NRCT)]
- The Development of Voice over Internet Protocol (VoIP) Laboratory Experiments using Asterisk Frame Work
[Status: Completed in 2015, Funding Source: National Research Council of Thailand (NRCT)]
- A Study of Efficiency and User Satisfaction in Cutting over from an Analog to a VoIP Telephone System
[Status: Completed in 2014, Funding Source: Nakhon Prathom Rajabhat University]
- The Design of Time Synchronization Protocol for Mobile Underwater Acoustic Networks Using Cross-layer Design Technique
[Status: Completed in 2014, Funding Source: National Research Council of Thailand (NRCT)]
- The Development and Utilization Study of an Intelligent Macrobrachium Rosenbergii Farming using Wireless Sensor System
[Status: Completed in 2014, Funding Source: National Science and Technology Development Agency (NSTDA)]
- The Development of Wireless Sensor Mote for Applications in Wireless Sensor Network
[Status: Completed in 2014, Funding Source: National Research Council of Thailand (NRCT)]
- The Development of a Smart and Low-cost IP-based Public Address System
[Status: Completed in 2014, Funding Source: National Research Council of Thailand (NRCT)]
- The Design of a Network Protocol for Extending the Lifetime of Underwater Acoustic Sensor Networks
[Status: Completed in 2014, Funding Source: National Research Council of Thailand (NRCT)]

- The Development of a Voice over Internet Protocol (VoIP) System for Nakhon Prathom Rajabhat University: An application level (phase-2)
[Status: Completed in 2013, Funding Source: Nakhon Prathom Rajabhat University]
- The Implementation of a Voice over Internet Protocol for Nakhon Prathom Rajabhat University.
[Status: Completed in 2012, Funding Source: Nakhon Pathom Rajabhat University]
- The Development and Performance Study of a Voice over Internet Protocol in an Educational Institute: A case study of Nakhon Pathom Rajabhat University
[Status: Completed in 2012, Funding Source: Office of Higher Education Commission]
- Network Protocols and Time Synchronization for Underwater Acoustic Networks
[Ph.D. thesis, 2011]
- Developing MAC protocol for underwater acoustic networks as part of the collaboration between NUS-ECE/ARL, Singapore (STARFISH Project)
[2005-2010]
- Energy efficient sleep and wake protocol designed for wireless sensor networks
[Course Project, 2005]
- The developing of microwave absorbers in an X-band frequency using carbon-black
[Bachelor Thesis, 1999]

EXPERIENCE

Vice President for Planning and Budgeting, Nakhon Pathom Rajabhat University	04/22 – present
Lecturer, Nakhorn Prathom Rajaphat University, Thailand ▪ Electrical Engineering Department	05/02 – present
Director of Computer Center, Nakhon Pathom Rajabhat Univeristy	10/13 – 04/22
Deputy Director of Academic Resources and Information Technology, Nakhon Pathom Rajabhat University	02/13 – 09/13
Assistant Director of Office of Academic Resources and Information Technology, Nakhon Pathom Rajabhat University	04/13 – 11/13
Guest Lecturer, King Mungkut's University of Technology North Bangkok ▪ Course: Selected Topics in Communications Technology	11/11 – 03/12
Research Engineer, ECE National University of Singapore, Singapore ▪ Designing an efficient data transmission (networking-layer perspective) for an underwater acoustic communication based on network coding	01/10 – 10/10
Teaching Assistant, ECE National University of Singapore, Singapore ▪ GEK 1500 : Inside your personal computer	01/06 – 12/10
Teaching Assistant, ECE National University of Singapore, Singapore ▪ EE 4104 : Microwave circuits and Devices	01/08 – 04/08
Internship: MIKOM GmbH, Buchdorf, Germany ▪ R&D team in the development of radio frequency repeaters to be used in mobile communication networks.	05/99 – 09/99

PUBLICATIONS

- **Nitthita Chirdchoo**, Suvimol Mukviboonchai, and Weerasak Cheunta, "Body weight estimation of live Pacific White Shrimp in a clay pond shrimp aquaculture for shrimp feeding using deep learning technique," submitted 2023.
- **Nitthita Chirdchoo**, Watanyu Meesrisuk, and Weerasak Cheunta, "The Use of a Front-End ZVZCS DC-DC Converter for an IoT VFD Inverter System in the Paddle Wheel Machine Drive Applications," *The International Journal of Power Electronics and Drive Systems (IJPEDS)*, vol. 15, no. 1, March 2024, pp. 288-298.
- Weerasak Cheunta, **Nitthita Chirdchoo**, and Sitthichai Chaona, "Transformation of an offline to an IoT-based real-time river water quality monitoring system," in *Proc. 12th NPRU National Academic Conference*, July, 2020. Pp. 663-668.
- Weerasak Cheunta, **Nitthita Chirdchoo**, Decha Boonprachak, and Kiattisak Wanrakchareonrungs, "Vehicle tracking system using Google map API and LabVIEW," in *Proc. 12th NPRU National Academic Conference*, July, 2020. Pp. 669-676.
- **Nitthita Chirdchoo** and Weerasak Cheunta, "Detection of Shrimp Feed with Computer Vision," *Journal of Thai Interdisciplinary Research (JTIR)*, vol.14, no.5, November, 2019.
- **Nitthita Chirdchoo** and Weerasak Cheunta, "Improving Efficiency in Shrimp Farm Management by Minimizing Unproductive Electrical Use and Utilizing Precision Aquaculture Technology," *Journal of Industrial Technology Ubon Ratchathani Rajabhat University*, July, 2019.
- **Nitthita Chirdchoo** and Kanittha Saelim, "Design and Development of a Sensor Mote for Precision Aquaculture," *ITC-CSCC 2018*, Bangkok, Thailand, Jul. 4-7, 2018.
- **Nitthita Chirdchoo** and Weerasak Cheunta, "Development of a Shrimp Farm Management System using Precision Aquaculture Technology," (in Thai), *NCITE 2018*, Ubonrachathani, Thailand, Jul 26-27, 2018.
- Kanittha Saelim, Weerasak Cheunta and **Nitthita Chirdchoo**, "Development of an API to reduce complexity in application developments on Arduino-based sensor nodes," (in Thai), *NCITE 2018*, Ubonrachathani, Thailand, Jul 26-27, 2018.
- Chairat Phongphanphanee, Pollawat Vonlopvisut, **Nitthita Chirdchoo** and Lunchakorn Wuttisittikulij, "Analysis of EMU-Sync: A Time Synchronization Protocol for Underwater Mobile Networks," *ITC-CSCC 2015*, Seoul, Korea, Jun. 29-Jul. 2, 2015.
- Nuttarit Leelapisut, Teerawat Issariyakul, **Nitthita Chirdchoo**, Lunchakorn Wuttisittikulij, "Improved Performance of Enhanced Receiver Initiated Packet Train (E-RIPT) for Underwater Acoustic Networks," *ITC-CSCC 2015*, Seoul, Korea, Jun. 29-Jul. 2, 2015.
- Thiti Sittivangkul, Weerasak Cheunta, **Nitthita Chirdchoo**, and Lunchakorn Wuttisittikulij, "Simple-API (Application Programming Interface) for an Arduino-based Wireless Sensor Mote," *ITC-CSCC 2015*, Seoul, Korea, Jun. 29-Jul. 2, 2015.
- Weerasak Cheunta, **Nitthita Chirdchoo** and Kanittha Saelim, "Efficiency Improvement of an Integrated Giant Freshwater-White Prawn Farming in Thailand Using a Wireless Sensor Network" *IEEE APSIPA ASC2014*, Siem Reap, city of Angkor Wat, Cambodia, Dec., 2014.
- Pollawat Vonlopvisut, Lunchakorn Wuttisittikulij, **Nitthita Chirdchoo** and Robithoh Annur, "Enhancement of MU-Sync: A Time Synchronization Protocol for Underwater Mobile Networks" *ITC-CSCC 2014*, Phuket, Thailand, July, 2014.
- Nuttarit Leelapisut, **Nitthita Chirdchoo**, Muhammad Saadi and Lunchakorn Wuttisittikulij, "Enhancement of Receiver-initiated Packet Train Protocol with Slotted Random Access for Underwater Acoustic Networks" *ITC-CSCC 2014*, Phuket, Thailand, July, 2014.
- Thiti Sittivangkul, **Nitthita Chirdchoo**, Weerasak Cheunta, Muhammad Saadi and Lunchakorn Wuttisittikulij, "Design and Development of a Wireless Sensor Mote Prototype for Laboratory Usage" *ITC-CSCC 2014*, Phuket, Thailand, July, 2014.
- **Nitthita Chirdchoo**, Weerasak Cheunta, Kanittha Saelim and Piya Kovintavewat, "Design and Implementation of a VoIP System for Campus Usage: A Case Study at NPRU," *ISCIT 2013*, Phuket, Thailand, 2013
- **Nitthita Chirdchoo**, Piya Kovintavewat, Norrarat Wattanamongkhon, Lunchakorn Wuttisittikulij, Pisit Vanichahanunt and Warakorn Srichavengsup, "Performance Evaluation of Channel Reservation Schemes for Reservation-based MAC Protocols with Different Priorities," *IEEE ISCIT'12*, Gold Coast, Australia, 2-5 Oct., 2012.

- **Nitthita Chirdchoo** and Weerasak Cheunta, “Decision Analysis on Choosing between a Traditional Telephone and a Voice-over-Internet Protocol (VoIP) System: A Case Study in Nakhon Pathom Rajaphat University,” (in Thai), *NPRU 2012*, Nakhon Pathom, Thailand 2012.
- Adisorn Kaewpukdee, **Nitthita Chirdchoo** and Piya Kovintavewat, “Transition Characteristics of Longitudinal Heat-assisted Magnetic Recording System,” *I-SEEC 2011*, Nakhon Pathom, Thailand, Dec., 2011.
- Santi Koonkarnkhai, **Nitthita Chirdchoo** and Piya Kovintavewat, “Iterative Decoding for High-density Bit-patterned Magnetic Recording,” *I-SEEC 2011*, Nakhon Pathom, Thailand, Dec., 2011.
- Santi Koonkarnkhai, **Nitthita Chirdchoo** and Piya Kovintavewat, “Two-dimensional Cross-track Asymmetric Target Design for High-density Bit-patterned Magnetic Recording,” *ISPACS-2011*, Chiang Mai, Thailand, Dec., 2011
- **Nitthita Chirdchoo**, Mandar Chitre and Wee-Seng Soh, " A Study on Network Coding in Underwater Networks," *MTS/IEEE OCEANS*, Seattle, Washington, United States, Sep., 2010.
- **Nitthita Chirdchoo**, Wee-Seng Soh and Kee Chaing Chua, " Sector-based Routing with Destination Location Prediction for Underwater Mobile Networks (Invited)," *IEEE WUnderNet 2009*, Bradford, UK, May, 2009.
- **Nitthita Chirdchoo**, Wee-Seng Soh and Kee Chaing Chua, "RIPT: A Receiver-initiated Reservation-based Protocol for Underwater Acoustic Networks," *IEEE Journal on Selected Areas in Communications (JSAC), Special Issue on Underwater Wireless Communications and Networks*, vol. 26, no. 9, pp. 1744-1753, Dec. 2008.
- **Nitthita Chirdchoo**, Wee-Seng Soh and Kee Chaing Chua, "MU-Sync: A Time Synchronization Protocol for Underwater Mobile Networks," *ACM WUWNet*, San Francisco, California, USA, Sep. 2008.
- **Nitthita Chirdchoo**, Wee-Seng Soh and Kee Chaing Chua, “MACA-MN: A MACA-based MAC Protocol for Underwater Acoustic Networks with Packet Train for Multiple Neighbors,” *IEEE VTC2008-Spring*, Singapore, May 2008.
- **Nitthita Chirdchoo**, Wee-Seng Soh and Kee Chaing Chua, "Aloha-based MAC Protocols with Collision Avoidance for Underwater Acoustic Networks," *IEEE INFOCOM Minisymposium*, Anchorage, Alaska, USA, May 2007

COMPUTER SKILLS

Programming Languages: C/C++, Assembly, HTML, php, SQL, C#, Python, Flux
 Applications: Matlab, Mathematica, OMNET++, Scilab, Tableau, PowerBI,
 Google data studio
 Certifications: Tableau desktop specialist, MikroTik MTCNA

HONORS AND ACTIVITY

Finance Chair at ITC-CSCC-2018 [July, 2018]
 Publication Chair at ITC-CSCC-2014 [July, 2014]
 Session Chair at ISPAC-2011 [Dec., 2011]
 Research scholarship from National University of Singapore [2005 – 2010]
 IEEE INFOCOM student travel grant, USA [2007]
 Scholarship from the Royal Thai Government, Thailand [2000 - 2002]
 IAESTE student exchange program scholarship [1999-1999]