



UNIVERSITY
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MĀNOA

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Hawaii Natural Energy Institute
The University of Hawaii, Manoa

Mr. Nattapat Praisuwanna

Education

- 2017–2024** The University of Tennessee, Knoxville
United States
- **Ph.D.** Electrical Engineering
- 2005–2011** King Mongkut's Institute of Technology Ladkrabang
Bangkok, Thailand
- **M.Eng** Electrical Engineering in 2011
 - **B.Eng** Electrical Engineering in 2008

Work Experience

- 2024–Present: Hawaii Natural Energy Institute,
The University of Hawaii, Manoa, United States**
Postdoctoral Researcher
- Dig Silent Modeling
 - GridSTART and PEA collaboration
- 2021–2024: The University of Tennessee, Knoxville, United States**
Graduate Teaching Assistant
- ECE 201 Circuits I, Fall 2021, Fall 2022
 - ECE 202 Circuit II, Spring 2022, Spring 2023, Fall 2023
 - ECE 341 Fields, Spring 2024
 - ECE 422 Power System Operations/Plan, Spring 2024
- 2017–2024: The University of Tennessee, Knoxville, United States**
Graduate Research Assistant
- Hardware Testbed Research Group, CURENT
 - Fault Detection for Inverter-based Distributed Generation
 - Actuation Research Group, CURENT
 - Inverter Design for High Penetration Renewable Energy System
 - Department of Defense (ESTCP) Microgrid Project
 - Microgrid Testing Platform Development.
 - VW Research Project
 - Using Second Life Batteries from Electric Vehicles to Provide Grid Services

Work Experience

2008-2017: Bira Brothers Co., Ltd., Bangkok, Thailand

Director and Senior Engineer

- Design, build, install, and service battery chargers for all utilities in Thailand including Electric and Water.
- Design, build, install, and service battery chargers for all airports in Thailand.
- Design, build, install, and service battery chargers and UPS for industries in Thailand.
- Produce more than 50% of battery chargers for a substation application in Thailand.
- Develop an EV charger business section including OCPP testing, designing, installation, construction, and maintenance EV charging stations.

2013-2017: Prai Anant Power Co., Ltd., Bangkok, Thailand

Part-time Engineer

- Design solar power plants including floating installation.
- Manage assigned solar projects including contract, agreement, materials, labors, equipment, cost, safety, quality, commissioning, and timeline.
- Identify and solve technical issues for the projects.
- Prepare final completion to deliver the projects.

2013–2015: King Mongkut’s Institute of Technology Ladkrabang Thailand

Researcher

- Study and Development of Smart Substation for supporting smart grid
- Microgrid Development Projects at Koh Kood, Trat, Thailand

2012–2015: King Mongkut’s Institute of Technology Ladkrabang Thailand

Researcher

- An Electric Vehicle Battery Charger Station Referring to CHAdeMO Standard for Provincial Electricity Authority Smartgrid

2011–2013: King Mongkut’s Institute of Technology Ladkrabang Thailand

Researcher

- Research and Development of Smart Grid for Energy Efficiency and Demand-Side Management
- Research and Development of Smart Microgrid for Sustainable Energy

Work Experience

2009–2011: King Mongkut's Institute of Technology Ladkrabang Thailand

Research Assistance

- Research and Development of Automatic Voltage Stabilizers with Series Compensators Technique to Improve Voltage Profile for a High Priority Customer of PEA

2008: Tokai University, Tokyo, Japan

Internship

- Research the electric vehicle and motor drive

Publication Conference papers

- **N. Praisuwanna**, J. Wang, L. M. Tolbert, B. She and F. Li, " Converter-Based Microgrid Platform Development for Inverter Based Resource Control Parameters Testing," *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Feb 25-29, 2024, Long Beach.
- **N. Praisuwanna**, L. M. Tolbert, J. Wang and F. Li, "Fault Detection Method by Utilizing Instantaneous Power Theory for Inverter-based Distributed Generation," *IEEE Applied Power Electronics Conference and Exposition (APEC)*, Mar 14-19, 2023, Orlando, pp. 954-959.
- L. Kong, **N. Praisuwanna**, L. Qiao, and F. Wang, "Development of a Two-Level VSC Based DC Impedance Measurement Unit," *IEEE Energy Conversion Congress & Expo*, October 11-15, 2020, Detroit, pp.2939-2944.
- L. Kong, S. Wang, **N. Praisuwanna**, S. Zhang, F. Wang, and L. M. Tolbert, "Stability Analysis and Controller Design of MMC Considering Control Delay," *IEEE Applied Power Electronics Conference and Exposition*, March 15-19, 2020, New Orleans, pp.1884-1890.
- L. Kong, S. Wang, **N. Praisuwanna**, S. Zhang, L. Qiao, F. Wang, and L. M. Tolbert, "DC Impedance Model of MMC Considering Capacitor Voltage and Circulating Current Dynamics," *IEEE Energy Conversion Congress & Expo*, September 29-October 3, 2019, Baltimore, pp.646-653.
- S. Zhang, S. Wang, **N. Praisuwanna**, L. Kong, Y. Li, R. B. Martin, F. Wang, and L. M. Tolbert, "Development of a Flexible Modular Multilevel Converter Test-Bed," *IEEE Energy Conversion Congress & Expo*, September 23-27, 2018, Portland, pp.5250-5257.
- **N. Praisuwanna**, S. Khomfoi, "A Seal Lead-Acid Battery Charger For Prolonging Battery Lifetime Using Superimposed Pulse Frequency Technique," *IEEE Energy Conversion Congress & Expo*, September 15-19, 2013, Colorado, pp.1603-1609.
- S. Khomfoi, **N. Praisuwanna**, L. M. Tolbert, "A Hybrid Cascaded Multilevel Inverter Application for Renewable Energy Resources Including a Reconfiguration Technique," *IEEE Energy Conversion Congress & Expo*, September 12-16, 2010, Atlanta, pp.3998-4005.

- S. Khomfoi, **N. Praisuwanna**, “A Hybrid Cascaded Multilevel Inverter for Interfacing with Renewable Energy Resources,” *IEEE International Power Electronics Conference*, June 19-21, 2010, Sapporo, Japan, pp.2912-2917.
- **N. Praisuwanna**, S. Khomfoi, “A Hybrid Cascaded Multilevel Inverter,” *IEEE Electrical Engineering/Electronics Computer Telecommunications and Information Technology Conference*, May 19-21, 2010, Chiangmai, Thailand, pp. 1041-1044.

Journal Papers

- B. She, J. Liu, F. Qiu, H. Cui, **N. Praisuwanna**, J. Wang, L. M. Tolbert, and F. Li, "Systematic Controller Design for Inverter-Based Microgrids With Certified Large-Signal Stability and Domain of Attraction," in *IEEE Transactions on Smart Grid*, 2023, pp.1-13.
- B. She, F. Li, H. Cui, H. Shuai, O. Oboreh-Snapps, R. Bo, **N. Praisuwanna**, J. Wang, and L. M. Tolbert, "Inverter PQ Control with Trajectory Tracking Capability for Microgrids Based on Physics-informed Reinforcement Learning," in *IEEE Transactions on Smart Grid*, 2023, pp1-14.

Reviewer

- IEEE 24th Workshop on Control and Modeling for Power Electronics (COMPEL 2023)
- IEEE Energy Conversion Congress and Exposition (ECCE 2023)
- IEEE Energy Conversion Congress and Exposition (ECCE 2022)
- IEEE Energy Conversion Congress and Exposition (ECCE 2021)
- The 4th International Conference on HVDC (HVDC 2020)

Volunteer Experience and Member

- CURENT Lab committee
- Co-chair 2023 CURENT Industry Conference.
- Student committee for 2022 International Future Energy Competition
- Equipment committee leader for 2018 and 2019 CURENT Industry Conference and NSF/DOE Site Visit
- KMITL team member of Thailand flooding relief 2011
- Professional Engineer (Thailand) since 2009
- IEEE member since 2009