

TRUONG HOANG BAO HUY

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OBJECTIVE

I am a postdoc in the Department of Electrical Engineering at [Eindhoven University of Technology](#). My research is centered around addressing challenges in modern power and energy systems, with a strong focus on energy-related modeling, forecasting, and optimization problems, and renewable energy integration (e.g., wind, solar, hydrogen) to facilitate the transition to a low-carbon future. I am particularly interested in integrating cutting-edge artificial intelligence-based algorithms to develop innovative, data-driven solutions for energy management in diverse smart energy systems.



EDUCATION

- **Soonchunhyang University** Mar 2022 - February 2025
PhD in Future Convergence Technology, IoT Network Lab Asan-si, South Korea
 - GPA (expected): 4.36/4.5
 - Coursework: Deep Learning, Deep Reinforcement Learning, Time Series Analysis
 - Thesis: Integration of AI-based and Optimization Strategies for Robust Energy Management in Smart Energy Systems
 - Supervisor: Prof. Daehee Kim
- **Universiti Teknologi PETRONAS** Aug 2018 - Oct 2020
Master of Science in Electrical & Electronics Seri Iskandar, Malaysia
 - Thesis: Search Group Algorithm for Multi-Objective Optimization in Energy Applications
 - Supervisor: Prof. Perumal Nallagownden
- **Ho Chi Minh City University of Technology - Vietnam National University** Sep 2012 - Apr 2017
Bachelor of Engineering in Electrical & Electronics Ho Chi Minh City, Vietnam
 - GPA: 3.0/4.0
 - Thesis: Optimal Power Flow with Emission and Non-smooth Cost Functions using Search Group Algorithm
 - Supervisor: Prof. Dieu Ngoc Vo

EXPERIENCE

- **Eindhoven University of Technology**  February 2025 - January 2028
Postdoctoral Researcher Eindhoven, The Netherlands
 - Conducted research on a project titled "Digital integration of multi-energy flexibility assets in Regional Energy Systems"
- **Thu Dau Mot University**  Dec 2020 - Feb 2022
Research Assistant Binh Duong, Vietnam
 - Conducted fundamental research in power system optimization, resulting in scientific publications
 - Contributed to research projects focused on renewable energy integration within radial distribution networks
 - Assisted in guiding undergraduate students' theses, contributing to their research development
- **Gouvis Engineering, Vietnam Office**  Jun 2017 - Jun 2018
Electrical Design Engineer Ho Chi Minh City, Vietnam
 - Engineered electrical systems for residential, multi-unit, and commercial projects
 - Designed efficient lighting layouts for both interior and exterior spaces
 - Collaborated with architectural and mechanical teams to integrate electrical designs into building plans

PROJECTS

- **Integrated Microgrid for Realization of Carbon Free 100%** July 2023 - Present
Tools: Pytorch, Stable-baseline3, imitation, Gurobi 
 - Developed models for integrated energy systems, including microgrids and hydrogen stations, to support carbon-free transitions.
 - Applied supervised and imitation learning to optimize the scheduling and operation of smart energy systems.
 - Conducted performance evaluations and benchmarked the proposed models against existing methods
- **ESS-IoT Smart Convergence Technology Advanced Track** Mar 2022 - Jun 2023
Tools: Tensorflow, Sklearn, Gurobi 
 - Developed day-ahead and real-time energy management systems for smart homes, integrating renewable energy sources, energy storage, and electric vehicles
 - Implemented energy forecasting models tailored for residential customers
 - Applied stochastic optimization and supervised learning to optimize energy scheduling within home energy management systems

PUBLICATIONS

C=CONFERENCE, J=JOURNAL, P=PATENT, S=IN SUBMISSION, T=THESIS

- [J.1] T.H.B.Huy, N.T.M.Duy, P.V.Phu, T.D.Le, S.Park, D.Kim. (2024). **Robust real-time energy management for a hydrogen refueling station using generative adversarial imitation learning**. *Applied Energy*, Vol. 373. DOI: doi.org/10.1016/j.apenergy.2024.123847
- [J.2] T.H.B.Huy, T.D.Le, P.V.Phu, S.Park, D.Kim. (2024). **Real-time power scheduling for an isolated microgrid with renewable energy and energy storage system via a supervised-learning-based strategy**. *Journal of Energy Storage*, Vol. 88. DOI: doi.org/10.1016/j.est.2024.111506
- [J.3] T.H.B.Huy, H.T.Dinh, D.N.Vo, D.Kim. (2023). **Real-time energy scheduling for home energy management systems with an energy storage system and electric vehicle based on a supervised-learning-based strategy**. *Energy Conversion and Management*, Vol. 292. DOI: doi.org/10.1016/j.enconman.2023.117340
- [J.4] T.H.B.Huy, H.T.Dinh, D.N.Vo, D.Kim. (2023). **Multi-objective framework for a home energy management system with the integration of solar energy and an electric vehicle using an augmented ϵ -constraint method and lexicographic optimization**. *Sustainable Cities and Society*, Vol. 88. DOI: doi.org/10.1016/j.scs.2022.104289
- [J.5] T.H.B.Huy, H.T.Doan, D.N.Vo, K.Lee, D.Kim. (2023). **Multi-objective optimal power flow of thermal-wind-solar power system using an adaptive geometry estimation based multi-objective differential evolution**. *Applied Soft Computing*, Vol. 149. DOI: doi.org/10.1016/j.asoc.2023.110977
- [J.6] T.H.B.Huy, D.Kim, D.N.Vo. (2022). **Multiobjective Optimal Power Flow Using Multiobjective Search Group Algorithm**. *IEEE Access*, Vol. 10. DOI: doi.org/10.1109/ACCESS.2022.3193371
- [J.7] T.H.B.Huy, P.Nallagownden, K.H.Truong, R.Kannan, D.N.Vo, N.Ho (2022). **Multi-Objective Search Group Algorithm for engineering design problems**. *Applied Soft Computing*, Vol. 126. DOI: doi.org/10.1016/j.asoc.2022.109287
- [J.8] T.H.B.Huy, T.T.Van, D.N.Vo, H.T.T.Nguyen. (2022). **An improved metaheuristic method for simultaneous network reconfiguration and distributed generation allocation**. *Alexandria Engineering Journal*, Vol. 61, Issue 10. DOI: doi.org/10.1016/j.aej.2022.01.056
- [J.9] T.H.B.Huy, T.P.Nguyen, N.M.Nor, I.Elamvazuthi, T.Ibrahim, D.N.Vo. (2022). **Performance Improvement of Multiobjective Optimal Power Flow-Based Renewable Energy Sources Using Intelligent Algorithm**. *IEEE Access*, Vol. 10. DOI: doi.org/10.1109/ACCESS.2022.3170547
- [J.10] T.H.B.Huy, P.Nallagownden, K.H.Truong, R.Kannan, D.N.Vo, H.T.T.Nguyen. (2021). **Multi-objective search group algorithm for thermo-economic optimization of flat-plate solar collector**. *Neural Computing and Applications*, Vol. 61, Issue 33. DOI: doi.org/10.1007/s00521-021-05915-w
- [C.1] T.H.B.Huy, D.N.Vo, H.D.Nguyen, H.P.Truong, K.T.Dang, K.H.Truong. (2023). **Short-term load forecasting in power system using CNN-LSTM neural network**. In *2023 Asia Meeting on Environment and Electrical Engineering (EEE-AM)*. Hanoi, Vietnam, November 2023. DOI: doi.org/10.1109/ICSSE58758.2023.10227147
- [C.2] T.H.B.Huy, D.N.Vo, H.D.Nguyen, H.P.Truong, K.T.Dang, K.H.Truong. (2023). **Enhanced Power System State Estimation Using Machine Learning Algorithms**. In *2023 International Conference on System Science and Engineering (ICSSE)*. Ho Chi Minh, Vietnam, July 2023. DOI: doi.org/10.1109/ICSSE58758.2023.10227147

SKILLS

- **Programming Languages:** Python, Matlab, Julia.
- **Data Science & Machine Learning:** Pytorch, Tensorflow, Sklearn
- **Optimization tools:** Gurobi Optimizer, GAMS, CPLEX
- **Power system software/framework:** PowerWorld, PSS/ADEPT, MATPOWER
- **Other Tools & Technologies:** Git, MySQL
- **Languages:** Vietnamese (Proficiency), English (Fluent), Korean.

ACADEMIC SERVICE

- **Peer Reviewer in Journals:** Sustainable Energy, Grids and Networks, Computers and Electrical Engineering (Elsevier), Soft Computing, Electrical Engineering, Cluster Computing, Scientific Reports (Springer), Energy Sources, Part A: Recovery, Utilization, and Environmental Effects (Wiley).
- **Peer Reviewer in International Conferences:** AETA2022.

REFERENCES

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