

# TRUONG HOANG BAO HUY

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Asan-si, Chungcheongnam-do, South Korea



## OBJECTIVE

I am a Ph.D candidate in the Department of Future Convergence Technology at [Soonchunhyang University](#), working under the supervision of [Prof. Daehee Kim](#). My research focuses on addressing challenges in modern power and energy systems, particularly in energy-related modeling, forecasting, and optimization. My research is driven by interdisciplinary approaches that exploit synergies between artificial intelligence, data science, and multi-energy systems. I have a strong emphasis on integrating renewable energy sources and flexible resources to facilitate the transition to a low-carbon future.



## EDUCATION

- **Soonchunhyang University** Mar 2022 - Present  
*Ph.D 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
  - Supervisor: Prof. Daehee Kim
- **Universiti Teknologi PETRONAS** July 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

- **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
  - Supervised undergraduate students on their final year projects
- **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 energy systems, including microgrids and hydrogen stations, to support the zero-carbon transition
  - 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 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  $\epsilon$ -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/EEE-AM58328.2023.10395221
- [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:** English (Fluent), Vietnamese (Proficiency).

## 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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| 1. <b>Prof. Daehee Kim</b><br>Associate Professor, Department of<br>Internet of Things<br>Soonchunhyang University<br>Email: daeheckim@sch.ac.kr<br>Phone: +82-10-2547-3751 | 2. <b>Prof. Dieu Ngoc Vo</b><br>Vice Dean, Faculty of Electrical &<br>Electronics Engineering<br>Ho Chi Minh City University of<br>Technology, VNU-HCM<br>Email: vndieu@hcmut.edu.vn<br>Phone: +84-97-859-0231 | 3. <b>Prof. Perumal Nallagownden</b><br>Associate Professor (Retired),<br>Department of Electrical &<br>Electronic Engineering<br>Universiti Teknologi PETRONAS<br>Email: nperumal@gmail.com<br>Phone: +60-12-693-3740 |
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