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. I have a strong emphasis on integrating renewable energy sources and flexible resources to facilitate the transition to a low-carbon future. My research is driven by interdisciplinary approaches that exploit synergies between artificial intelligence, data science, and multi-energy systems.

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
  - Guided undergraduate students in the completion of their thesis 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 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/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:** PowerWord, 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

1. **Prof. Daehee Kim**
   Associate Professor, Department of Internet of Things
   Soonchunhyang University
   Email: daeheekim@sch.ac.kr
   Phone: +82-10-2547-3751

2. **Prof. Dieu Ngoc Vo**
   Vice Dean, Faculty of Electrical & Electronics Engineering
   Ho Chi Minh City University of Technology, VNU-HCM
   Email: vndieu@hcmut.edu.vn
   Phone: +84-97-859-0231

3. **Prof. Perumal Nallagownden**
   Associate Professor (Retired), Department of Electrical & Electronic Engineering
   Universiti Teknologi PETRONAS
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