NGUYỄN Bảo-Huy

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https://scholar.google.com/citations?hl=en&user=BKJabJsAAAAJ

https://www.linkedin.com/in/nguyenbaohuy/ (for networking)

https://baohuynguyen.github.io/ (for my full activities)

Appointments

2022 - present	*Lecturer*, CTI Lab4EV, School of Electrical and Electronic Engineering, Hanoi University of Science and Technology, Vietnam
2019 - 2021	*Postdoctoral Fellow*, e–TESC Lab, Université de Sherbrooke, QC, Canada
2012 - 2022	*Research Engineer*, CTI Lab4EV, School of Electrical Engineering, Hanoi University of Science and Technology, Vietnam

Education

2015 - 2019	Ph.D. in Electrical Engineering, L2EP, Université de Lille, France and Université de Sherbrooke, QC, Canada (dual degree)
2013 - 2015	M.Sc. in Electrical Engineering, Hanoi University of Science and Technology, Hanoi, Vietnam
2005 - 2010	B.Sc. (5-year Engineer Degree) in Electrical Engineering, Hanoi University of Science and Technology, Hanoi, Vietnam

Research Interests

Control engineering, Power electronics and drives, Electric and hybrid vehicles, Transportation electrification, Inverter-based resources, Power systems, Renewable energy, Battery energy storage system

Professional Activities

2026 - present	*Associate Editor*, IEEE Vehicular Technology Magazine
2026 - present	*Member*, Vehicle Power and Propulsion Technical Committee (VPP TechCom), IEEE Vehicular Technology Society (VTS)
2019 - present	*Track Chair and Session Chair*, IEEE Vehicle Power and Propulsion Conference (IEEE VPPC)
2021	*Technical Chair*, IEEE VTS Motor Vehicles Challenge 2021 "Energy Management of a Dual-Motor All-Wheel Drive Electric Vehicle"

Projects

2025 - present	**Principal Investigator**, Control of grid-following and grid-forming inverters in power system with high penetration of renewable energy and electric vehicles, *Hanoi University of Science and Technology* (Funded by the university)
2024 - 2026	**Energy Modeling Expert**, Transition to electric bus in Hanoi, *Dornier Consulting International GmbH* (Funded by World Bank)
2025	**Principal Investigator**, Grid RoCoF-based inertia estimation, *Applied Technical Systems Joint Stock Company (ATS JSC), Vietnam* (Funded by industry)
2025	**Principal Investigator**, Optimal scheduling for generations and transmission lines maintenance, *Applied Technical Systems Joint Stock Company (ATS JSC), Vietnam* (Funded by industry)
2023 - 2024	**National Energy Expert**, Scaling up E-mobility and mechanisms for promoting investment in green projects in Vietnam: Formulation of road transport infrastructure plan – Methodology tool for Vietnam distribution networks, *UNDP Vietnam and Department for Roads of Viet Nam* (Funded by UNDP)
2023 - 2024	**Senior Researcher**, Common Network Asset Indices Methodology Tool for Vietnam Distribution Networks, *Applied Technical Systems Joint Stock Company (ATS JSC), Vietnam* (Funded by industry)
2023 - 2024	**Principal Investigator**, Oscillation Source Location Tool using Dissipating Energy Flow method, *Applied Technical Systems Joint Stock Company (ATS JSC), Vietnam* (Funded by industry)
2022 - 2025	**Principal Investigator**, Power hardware-in-the-loop of battery/supercapacitor hybrid energy storage systems for electric vehicles, *Hanoi University of Science and Technology* (Funded by the university)
2022 - 2024	**Senior Researcher**, Review on Research Directions on Electric Power System Integrating Renewable Energy Resources, *Vietnam Electricity (EVN)* (Funded by industry)
2023	**Principal Investigator**, Models and Controllers for Wind Power Plant Control, *Applied Technical Systems Joint Stock Company (ATS JSC), Vietnam* (Funded by industry)
2019 - 2023	**Senior Researcher**, Next-Generation Electrified Vehicles, *European Regional Development Fund through the COMPETE 2020 Program within project MAnAGER under Grant POCI-01-0145-FEDER-028040*
2019 - 2023	**Senior Researcher**, High-Performance Multi-Source Multi-Motor Electric Vehicles, *Fonds de recherche du Québec – Nature et Technologies under Grant 2019-NC-252886*
2011 - 2015	**Senior Researcher**, Design of Control Systems and Drives for Electric Vehicles, *Vietnam State–granted project, KC.03.08/11–15*

Publications

(*) for corresponding author

Book Chapters

2022

Bảo-Huy Nguyễn(*) and João Pedro F. Trovão, "Practical linear controllers for power electronics and drives," in *Encyclopedia of Electrical and Electronic Power Engineering,* Elsevier, 2022.

2021

Bảo-Huy Nguyễn(*) and João Pedro F. Trovão, "Optimal energy management of electric vehicles supplied by battery and supercapacitors: A multi-objective approach," in *Intelligent Control and Smart Energy Management: Renewable Resources and Transportation*, M. J. Blondin et al., Ed., Springer Nature, 2021.

International Journals

2026

Phi-Hung Nguyen, Linh Tran, Thanh Vo-Duy, **Bảo-Huy Nguyễn**(*), "Comprehensive analysis of dissipating energy flow-based oscillation source locating methods for modern power systems," *Electric Power Systems Research,* vol. 265, 2026. p. 113901 (SCIE, Q1)

Thi Phuong Chi Nguyen, **Bảo-Huy Nguyễn**(*), Minh C. Ta, and João Pedro F. Trovão, "Smart Energy Management for Electric Vehicle: A Unified Adaptive Network Approach," *IEEE Vehicular Technology Magazine,* vol. 21, no. 1, 2026. pp. 18 - 26 (SCIE, Q1)

2025

Huy-Ngoc Duong, Linh Tran, Thanh Vo-Duy, João Pedro F. Trovão, and **Bảo-Huy Nguyễn**(*), "Small-signal stability analysis of mixed power system integrating grid forming and following inverters-based resources," *Mathematics and Computers in Simulation,* vol. 241, part A, pp. 562-581, 2025. (SCIE, Q1)

Marouane Adnane, **Bảo-Huy Nguyễn**(*), Ahmed Khoumsi, and João Pedro F. Trovão, "Real-time Multi-Ensemble Learning-Based Power Prediction for Energy Management of Dual-Source Electric Vehicles," *IEEE Transactions on Vehicular Technology,* vol. 74, no. 10, 2025, pp. 15565 - 15574. (SCIE, Q1)

Marouane Adnane, **Bảo-Huy Nguyễn**(*), Ahmed Khoumsi, and João Pedro F. Trovão, "Comparative Study of Embedded Energy Management Methods based on Machine Learning for Dual-Source Electric Vehicles," *IEEE Trans. Transportation Electrification,* vol. 11, no. 4, 2025, pp. 10225 - 10238. (SCIE, Q1)

Hai-Nam Nguyen, **Bảo-Huy Nguyễn**, Thanh Vo-Duy(*), João Pedro F Trovão, Minh C Ta, "Sliding-mode energy management strategy for dual-source electric vehicles handling battery rate of change of current," *Control Engineering Practice,* vol. 154, p. 106157, 2025. (SCIE, Q1)

2024

Thanh Vo-Duy, **Bảo-Huy Nguyễn**(*), João Pedro F Trovão, Minh C Ta, "A unified anti-slip cruise control strategy for electric vehicles," *Nonlinear Dynamics,* vol. 12, no. 20, pp. 18357-18375, 2024. (SCIE, Q1)

Huy-Ngoc Duong, Linh Tran, Tuyen Vu, Thanh Vo-Duy, and **Bảo-Huy Nguyễn**(*), "A Global Optimal Benchmark for Energy Management of Microgrid (GoBuG) Integrating Hybrid Energy Storage System," *IEEE Transactions on Smart Grid,* vol. 15, no. 6, 2024. (SCIE, Q1)

Tien Nguyen-Minh, **Bảo-Huy Nguyễn**, Thanh Vo-Duy(*), Minh C Ta, João Pedro F Trovão, Carlos Henggeler Antunes, "A universal optimal sizing for hybrid energy storage system of electric vehicles," *Journal of Energy Storage,* p. 112128, 2024. (SCIE, Q1)

Quang-Manh Hoang, **Bảo-Huy Nguyễn**(*), Thanh Vo-Duy, João Pedro F. Trovão, and Minh C. Ta, "Decoupled average model-based sliding mode current

control of LC-filtered inverters in rotating frame," *Mathematics and Computers in Simulation,* 2024. (SCIE, Q1)

2023

Chi T. P. Nguyen, **Bảo-Huy Nguyễn**(*), João Pedro F. Trovão, and Minh C. Ta, "Optimal Energy Management Strategy based on Driving Pattern Recognition for a Dual-Motor Dual-Source Electric Vehicle," *IEEE Transactions on Vehicular Technology,* 2023. (SCIE, Q1)

Ngoc-Lam Vu, Pascal Messier, **Bảo-Huy Nguyễn**(*), Thanh Vo-Duy, João Pedro F. Trovão, Alain Desrochers, and António Rodrigues, "Energy-optimization design and management strategy for hybrid electric non-road mobile machinery: A case study of snowblower," *Energy*, vol. 284, p. 129249, 2023. (SCIE, Q1)

Chi T. P. Nguyen, **Bảo-Huy Nguyễn**, Minh C. Ta, and João Pedro F. Trovão(*), "Dual-Motor Dual-Source High Performance EV: A Comprehensive Review," *Energies,* vol. 16, no. 20, p. 7048, 2023. (SCIE, Q1)

Chi T. P. Nguyen, **Bảo-Huy Nguyễn**(*), João Pedro F. Trovão, and Minh C. Ta, "Torque Distribution Optimization for a Dual-Motor Electric Vehicle using Adaptive Network-based Fuzzy Inference System," *IEEE Trans. Energy Convers.,* vol. 38, no. 4, pp. 2784 - 2795, 2023. (SCIE, Q1)

Thanh Vo-Duy, Truong-Minh Doan, **Bảo-Huy Nguyễn**(*), and João Pedro F. Trovão, "Optimal Energy Management System of Dual-motor Electric Vehicles with Longitudinal Dynamic Characteristic Consideration," *IEEE Trans. Veh. Technol.,* 2023. (SCIE, Q1)

2022

Chi T. P. Nguyen, **Bảo-Huy Nguyễn**(*), João Pedro F. Trovão, and Minh C. Ta, "Optimal drivetrain design methodology for enhancing dynamic and energy performances of dual-motor electric vehicles," *Energy Conversion and Management,* vol. 252, p. 115054, 2022. (SCIE, Q1)

2021

Hoai-Linh T Nguyen, **Bảo-Huy Nguyễn**(*), Thanh Vo-Duy(*), and João Pedro F. Trovão, "A Comparative Study of Adaptive Filtering Strategies for Hybrid Energy Storage Systems in Electric Vehicles," *Energies*, vol. 14, no. 12, p. 3373, 2021. (SCIE, Q2)

Bảo-Huy Nguyễn, Thanh Vo-Duy, Carlos Henggeler Antunes, and João Pedro F. Trovão(*), "Multi-objective benchmark for energy management of dual-source electric vehicles: An optimal control approach," *Energy*, vol. 23, p. 119857, 2021. (SCIE, Q1)

Bảo-Huy Nguyễn, Thanh Vo-Duy, Minh C Ta, and João Pedro F. Trovão(*), "Optimal Energy Management of Hybrid Storage Systems Using an Alternative Approach of Pontryagin's Minimum Principle," *IEEE Trans. Transp. Electrification*, vol. 7, no. 4, pp. 2224 - 2237, 2021. (SCIE, Q1)

Marouane Adnane, **Bảo-Huy Nguyễn**, Ahmed Khoumsi, and João Pedro F. Trovão(*), "Driving Mode Predictor-based Real-Time Energy Management for Dual-Source Electric Vehicle," *IEEE Trans. Transp. Electrification*, vol. 7, no. 3, pp. 1173-1185, 2021. (SCIE, Q1)

2020

Thanh Vo-Duy(*), Minh C. Ta, **Bảo-Huy Nguyễn**, João Pedro F. Trovão, "Experimental Platform for Evaluation of On-Board Real-Time Motion Controllers for Electric Vehicles," *Energies*, vol. 13, no. 23, p. 6448, 2020. (SCIE, Q2)

Bảo-Huy Nguyễn, João Pedro F. Trovão(*), Ronan German, and Alain Bouscayrol, "Real-time energy management of parallel hybrid electric vehicles using linear quadratic regulation," *Energies*, vol. 13, no. 21, p. 5538, 2020. (SCIE, Q2)

Chi T. P. Nguyen, **Bảo-Huy Nguyễn**, João Pedro F. Trovão(*), and Minh C. Ta, "Effect of battery voltage variation on electric vehicle performance driven by induction machine with optimal flux-weakening strategy," *IET Electr. Syst. Transp.*, vol. 10, no. 4, p. 351-359, 2020. (SCIE, Q2)

Pascal Messier, **Bảo-Huy Nguyễn**, Felix-A LeBel, and João Pedro F. Trovão(*), "Disturbance observer-based state-of-charge estimation for Li-ion battery used in light electric vehicles," *J. Energy Storage*, vol. 27, p. 101144, 2020. (SCIE, Q1)

2019

Bảo-Huy Nguyễn, Ronan German(*), João Pedro F. Trovão, and Alain Bouscayrol, "Real-Time Energy Management of Battery/Supercapacitor Electric Vehicles Based on an Adaptation of Pontryagin's Minimum Principle," *IEEE Trans. Veh. Technol.*, vol. 68, no. 1, pp. 203–212, 2019. (SCIE, Q1)

International Conferences

2024

Phi-Hung Nguyen, Ngoc-Lam Vu, Thanh Vo-Duy, Linh Tran, João Pedro F. Trovão, and **Bảo-Huy Nguyễn**(*), "Performance Evaluation of Fault Ride-Through Strategies for Wind Power Plant Type 4," in *2024 13th International Conference on Control, Automation and Information Sciences (ICCAIS),* Ho Chi Minh City, Vietnam, 2024. (Scopus)

Khanh-Linh Dang, Linh Tran, Thanh Vo-Duy, Minh C. Ta, João Pedro F. Trovão, and **Bảo-Huy Nguyễn**(*), "Modeling of Hybrid Power Systems Combining Grid-Following and Grid-Forming Inverters Using Energetic Macroscopic Representation," in *2024 13th International Conference on Control, Automation and Information Sciences (ICCAIS),* Ho Chi Minh City, Vietnam, 2024. (Scopus)

Quang-Khanh Pham, Thanh Vo-Duy, Linh Tran, João Pedro F Trovão, and **Bảo-Huy Nguyễn**(*), "Virtual Oscillator Control for Enhanced Grid Stability in Inverter-Based Power Systems," in *IEEE 22nd Mediterranean Electrotechnical Conference (MELECON),* Porto, Portugal, 2024. (Scopus)

2023

Chi T. P. Nguyen, João Pedro F. Trovao, **Bảo-Huy Nguyễn**(*), and Minh C. Ta, "Reduced-Scale Hardware-in-the-Loop Platform for Dual-Source Off-Road Electric Vehicle using Energetic Macroscopic Representation," in *2023 IEEE Vehicle Power and Propulsion Conference (VPPC),* Milan, Italy, 2023. (Scopus)

Huy-Ngoc Duong, **Bảo-Huy Nguyễn**(*), Thanh Vo-Duy, Minh C. Ta, and João Pedro F. Trovão, "Optimal Sizing of Li-Ion Capacitor for Off-Road Electric Vehicles," in *2023 IEEE Vehicle Power and Propulsion Conference (VPPC),* Milan, Italy, 2023. (Scopus)

Quang-Manh Bui, Linh Tran, Thanh Vo-Duy, Tuyen Vu, and **Bảo-Huy Nguyễn**(*), "Frequency Response of Grid-Forming and Following Inverters-Based Microgrid Supplied by Onshore Electrified Ships," in *IECON 2023- 49th Annual Conference of the IEEE Industrial Electronics Society,* Singapore, 2023. (Scopus)

2022

Quang-Manh Hoang, **Bảo-Huy Nguyễn**(*), Thanh Vo-Duy, Minh C. Ta, and João Pedro F. Trovão, "Active Power Filter DC Voltage Control Based on Capacitor Energetic Model," in *11th International Conference on Control, Automation and Information Sciences (ICCAIS), 2022*, Nancy, France, 2022. (Scopus)

Khanh-Linh Dang, **Bảo-Huy Nguyễn**, Thanh Vo-Duy(*), Minh C. Ta, and João Pedro F. Trovão, "Sliding Mode Solution for Rotor Flux Control and Estimation of Induction Motors Using Energetic Macroscopic Representation," in *11th International Conference on Control, Automation and Information Sciences (ICCAIS), 2022*, Nancy, France, 2022. (Scopus)

Hai-Nam Nguyen, **Bảo-Huy Nguyễn**(*), Thanh Vo-Duy, Minh C. Ta, and João Pedro F. Trovão, "Decoupled Average Model-based Sliding Mode Current Control of LC-filtered Inverters in Rotating Frame," in *ElectrIMACS 2022*, Nancy, France, 2022. (Scopus)

2021

Hoai-Linh T. Nguyen, Son Nguyen-Van, Tri Xuan Hoang, Thanh Vo-Duy(*), **Bảo-Huy Nguyễn**, and Minh C. Ta, "Optimal Energy Management of a Dual-motor Electric Vehicle using Dynamic Programming," in *2021 IEEE Vehicle Power and Propulsion Conference (VPPC)*, Gijon, Spain, 2021. (Scopus)

2020

Bảo-Huy Nguyễn, João Pedro F. Trovão, Samir Jeme , Loic Boulon, and Alain Bouscayrol, "IEEE VTS Motor Vehicles Challenge 2021-Energy Management of A Dual-Motor All-Wheel Drive Electric Vehicle," in *2020 IEEE Vehicle Power and Propulsion Conference (VPPC)*, Gijon, Spain, 2020. (Scopus)

Thanh Vo-Duy, **Bảo-Huy Nguyễn**, Minh C Ta, João P Trovão, and NHP Nguyen, "Different Voltage and Current Control Schemes for Multi-pack Battery of Electric Scooters," in *2020 IEEE Vehicle Power and Propulsion Conference (VPPC)*, Gijon, Spain, 2020. (Scopus)

2019

Bảo-Huy Nguyễn, João Pedro F. Trovão, Ronan German, and Alain Bouscayrol, "Impact of Supercapacitors on Fuel Consumption and Battery Current of a Parallel Hybrid Truck," in *2019 IEEE Vehicle Power and Propulsion Conference (VPPC)*, Hanoi, Vietnam, 2019. (Scopus)

Chi T. P. Nguyen, João Pedro F. Trovão, **Bảo-Huy Nguyễn**, and Minh C. Ta, "Powertrain analysis of an all-wheel-drive off-road electric vehicle," in *2019 IEEE Vehicle Power and Propulsion Conference (VPPC)*, Hanoi, Vietnam, 2019. (Scopus)

Chi T. P. Nguyen, **Bảo-Huy Nguyễn**, João Pedro F. Trovão, and Minh C. Ta, "Impact of battery temperature on motor flux weakening operations in electric vehicles," in *2019 IEEE Vehicle Power and Propulsion Conference (VPPC)*, Hanoi, Vietnam, 2019. (Scopus)

2018

Bảo-Huy Nguyễn, Ronan German, Alain Bouscayrol, and João Pedro F. Trovão, "Bi-level Optimal Energy Management of a Hybrid Truck Supplied by Batteries and Supercapacitors," in *2018 IEEE Vehicle Power and Propulsion Conference (VPPC)*, Chicago, USA, 2018. (Scopus)

Bảo-Huy Nguyễn, João Pedro F. Trovão, Ronan German, Alain Bouscayrol, and Yves Goulet, "Optimal Energy Management of a Parallel Hybrid Truck for Fuel Consumption Comparative Study," in *The IEEE* 87^{th} *Vehicular Technology Conference: VTC2018–Spring*, Porto, Portugal, 2018. (Scopus)

Bảo-Huy Nguyễn, João Pedro F. Trovão, Ronan German, and Alain Bouscayrol, "Merging Control of a Hybrid Energy Storage System using Battery/Supercapacitor for Electric Vehicle Application," in *The* 19^{th} *IEEE International Conference on Industrial Technology (IEEE–ICIT'17)*, Lyon, France, 2018, pp. 2066-2071. (Scopus)

2017

Bảo-Huy Nguyễn, João Pedro F. Trovão, Ronan German, and Alain Bouscayrol, "An Optimal Control–Based Strategy for Energy Management of Electric Vehicles using Battery/ Supercapacitor," in *2017 IEEE Vehicle Power and Propulsion Conference (VPPC)*, Belfort, France, 2017. (Scopus)

Bảo-Huy Nguyễn, João Pedro F. Trovão, Ronan German, and Alain Bouscayrol, "Energy management of hybrid energy storage systems for electric vehicles: A multi-objective approach," in *ElectrIMACS 2017*, Toulouse, France, 2017.

2016

Bảo-Huy Nguyễn, Ronan German, João Pedro F. Trovão, and Alain Bouscayrol, "Improved Voltage Limitation Method of Supercapacitors in Electric Vehicle Applications," in *2016 IEEE Vehicle Power and Propulsion Conference (VPPC)*, Hangzhou, China, 2016. (Scopus)

2015

Bảo-Huy Nguyễn, Han V. Do, and Minh C. Ta, "High Performance Current Control of IPMSM for Electric Vehicles Drives Using Disturbance Observer," in *2015 IEEE Vehicle Power and Propulsion Conference (VPPC)*, Montréal, QC, Canada, 2015. (Scopus)

Bảo-Huy Nguyễn, Dzung Nguyen, Thanh Vo-Duy, and Minh C. Ta, "An EMR of Tire-Road Interaction based-on "Magic Formula" for Modeling of Electric Vehicles," in *2015 IEEE Vehicle Power and Propulsion Conference (VPPC)*, Montréal, QC, Canada, 2015. (Scopus)

2011

Bảo-Huy Nguyễn and Cao-Minh Ta, "Finite element analysis, modeling and torque distribution control for switched reluctance motors with high non-linear inductance characteristics," in *IEEE International Electric Machines and Drives Conference (IEEE–IEMDC'11)*, Niagara Falls, ON, Canada, 2011, pp. 693–698. (Scopus)