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EDUCATION	Ph.D. in Electrical Engineering (minor in CS), Iowa State University, Ames IA, 4.0/4.0 B. S. in Automation , Zhejiang University, Hangzhou China	12/2014 06/2009
INTERESTS	Systems and Control, Artificial Intelligence, Intelligent Vehicles, Robotics, Battery Management Systems	
EMPLOYMENT	Oakland University , Rochester, MI, USA - Associate Professor , Department of Electrical and Computer Engineering - Assistant Professor, Department of Electrical and Computer Engineering General Motors , Michigan, USA - Senior Control Systems Engineer, Vehicle and Propulsion Control, Milford - Summer Intern, Software V&V, Warren (GM R&D) Idaho National Laboratory , Idaho Falls, ID, USA - R&D Scientist, Power and Energy Systems	08/2024–present 08/2020–08/2024 01/2017–08/2020 04/2014–07/2014 11/2014–12/2016
HONORS AND RECOGNITIONS	NSF CAREER Award , National Science Foundation Best Paper Award , IEEE Transactions on Automation Science and Engineering Best Paper Award , IEEE International Conference on Electro-Information Technology IEEE Senior Member Associate Editor , American Control Conference Associate Editor , Modeling, Estimation, and Control Conference Associate Editor , IEEE Conference on Control Technology and Applications Outstanding Graduate Mentor Award , Oakland University Most Research Active Award , Oakland University New Investigator Research Excellence Award , Oakland University Most Active Grant Seeker Award , Oakland University Oakland County 40 Under 40 , Oakland County NSF CMMI Game Changer Academies (C-GCA) Panel Fellow , NSF Faculty Recognition Award for Research , Oakland University R&D 100 Award , R&D World Associate Editor , IEEE International Conference on Robotics and Automation INL Publication Achievement Award , Idaho National Laboratory INL Exceptional Contributions Program Award , Idaho National Laboratory Research Excellence Award , Iowa State University Student Travel Award , American Control Conference Third Class Scholarship for Undergraduate Student , Zhejiang University Outstanding Student , Zhejiang University	2022 2016 2023 2020 2024–present 2024–present 2023–present 2025 2024 2024 2023 & 2024 2024 2024 2020 2016 2015 & 2016 2014 2014 2008 2008
HONORS BY MY ADVISEES	Student Grant (Wanqun Yang), Modeling, Estimation and Control Conference SECS Best Graduate Paper Award (Zhaodong Zhou), Oakland University Undergraduate Research Competition Winner (Steven DeCoste), ASME ICE Division	2025 2024 2022
SELECTED GRANTS	Total: ~\$5.7m; As lead/sole PI: ~\$2.2m; Personal share: ~\$2.4m [7] Jun Chen , “Collaborative Research: Scalable Privacy Verification and Quantification for Multi-Robot Systems,” 10/2025–09/2028, NSF-FRR. (Collaborative project with Dr. Feng Lin from Wayne State University; Lead institution – OU)	

- [6] **Jun Chen**, “Sensor-lean Estimation and Monitoring for Second Life EV Batteries,” 05/2025–04/2028, NSF-ECCS-EPCN.
- [5] **Jun Chen**, “CAREER: Reconfigurable and Predictive Control with Reinforcement Learning Supervisor for Active Battery Cell Balancing,” 01/2023–12/2027, NSF-ECCS-EPCN.
- [4] **Jun Chen**, “Sensor Reduction for Large Battery Packs,” 09/2024–08/2026, Michigan Translational Research and Commercialization (MTRAC) for Advanced Transportation Innovation Hub.
- [3] **Jun Chen**, “Affordable Autonomous Vehicle Platform for University Research and Education,” 09/2025–08/2026, MEDC ADVANCE Proof-of-Concept Fund.
- [2] Ankun Yang, **Jun Chen**, Xia Wang, Yongsoon Yoon, Dan DelVescovo, Daniel Aloï, Shadi Alawneh and Mohammad Sedigh Toulabi, “Next-Gen Electrification Testing and Standards Facility: from Materials to Vehicles,” 10/2024–09/2026, National Institute of Standards and Technology.
- [1] Yang Chen, **Jun Chen** and Om Prakash Yadav, “Ocean Energy Supported Multi-Energy System Planning and Operation Optimization for Sustainable Coastal Community,” 07/2023–06/2024, Coastal Studies Institute, North Carolina Renewable Ocean Energy Program.

PUBLICATIONS

(h-index: 24; underline: students under my close supervision; *: corresponding author)

Patents

- [4] Min Sun, Yiran Hu, David Edwards, **Jun Chen**, Insu Chang and Steven Moorman, “[Active Thermal Management System and Method for Flow Control](#),” U.S. Patent No. US11312208 B2, April 26, 2022.
- [3] **Jun Chen**, Ruixing Long and Yiran Hu, “[Method for Increasing Control Performance of Model Predictive Control Cost Functions](#),” U.S. Patent No. US11192561 B2, December 7, 2021.
- [2] Yiran Hu, David Edwards, Michael Paratore Jr, Min Sun, **Jun Chen**, Eugene Gonze and Sergio Quelhas, “[Method and Apparatus for Control of Propulsion System Warmup Based on Engine Wall Temperature](#),” U.S. Patent No. 11078825 B2, August 3, 2021.
- [1] **Jun Chen**, David Edwards, Yiran Hu, Min Sun, Adam J. Heinzen and Michael A. Smith, “[Method and System for Determining Thermal State](#),” U.S. Patent No. 10995688 B2, May 4, 2021.

Book Chapters

- [1] Mariam Ibrahim, **Jun Chen** and Ratnesh Kumar, “[Quantification of Centralized/Distributed Secrecy in Stochastic Discrete Event Systems](#),” in *Recent Advances in Systems Safety and Security*, Editors: Emil Pricop and Grigore Stamatescu, Springer, May 2016, ISBN: 978-3-319-32523-1.

Journal Articles

- [48] Zhaodong Zhou and **Jun Chen***, “[Privacy-Preserving Personalized Autonomous Vehicle Lane Change Using Inverse Reinforcement Learning](#),” *IEEE Transactions on Vehicular Technology*, (Accepted for Publication September 2025)
- [47] Nana Duah, Yang Chen*, Om Prakash Yadav and **Jun Chen**, “[Marine Energy Supported Multi-Energy System Planning and Operation Optimization for Sustainable Coastal Community](#),” *Sustainable Energy, Grids and Networks*, volume 44, number 1, pages 1–15, December 2025.
- [46] Luke Nuculaj and **Jun Chen***, “[Simultaneous Cell State Estimation via Dense Adaptive Extended Kalman Filter](#),” *IEEE Transactions on Control Systems Technology*, volume 33, number 6, pages 2092–2107, November 2025.
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- [43] Wanqun Yang and **Jun Chen***, “[Comparison of Linear MPC and Explicit MPC for Battery Cell Balancing Control](#),” *Algorithms*, volume 18, number 9, pages 1–13, September 2025.

- [42] David Flessner and **Jun Chen***, “[Reinforcement Learning-Based Event-Triggered Model Predictive Control for Electric Vehicle Active Battery Cell Balancing](#),” *ASME Letters in Dynamic Systems and Control*, volume 5, number 2, pages 1–5, April 2025.
- [41] Zhaodong Zhou, Mingyuan Tao, Jiayi Qiu, Peng Zhang, Meng Xu and **Jun Chen***, “[Autonomous Vehicle Path Tracking Using Event-Triggered MPC with Switching Model: Methodology and Real-World Validation](#),” *IET Control Theory & Applications*, volume 19, number 1, pages 1–10, January 2025.
- [40] Ranya Badawi and **Jun Chen***, “[Event-Triggered Boost Converter Model Predictive Control with Kalman Filter](#),” *Systems Science & Control Engineering*, volume 12, number 1, pages 1–15, December 2024.
- [39] Guojiang Xiong*, Jing Zhang, Xiaofan Fu, **Jun Chen** and Ali Wagdy Mohamed, “[Seasonal Short-term Photovoltaic Power Prediction Based on GSK-BiGRU-XGboost Considering Correlation of Meteorological Factors](#),” *Journal of Big Data*, volume 11, number 164, pages 1–19, November 2024.
- [38] Mingqiang Wang, Lei Zhang*, **Jun Chen**, Zhiqiang Zhang, Zhenpo Wang and Dongpu Cao, “[A Hybrid Trajectory Prediction Framework for Automated Vehicles with Attention Mechanisms](#),” *IEEE Transactions on Transportation Electrification*, volume 10, number 3, pages 6178–6194, September 2024.
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- [36] Cong Wang, Zhenpo Wang, Lei Zhang*, **Jun Chen** and Dongpu Cao, “[Post-Impact Stability Control for Road Vehicles: State-of-the-Art Methodologies and Perspectives](#),” *IEEE Transactions on Intelligent Transportation Systems*, volume 25, number 8, pages 8295–8312, August 2024.
- [35] **Jun Chen***, Aman Behal, Zhaojian Li and Chong Li, “[Active Battery Cell Balancing by Real Time Model Predictive Control for Extending Electric Vehicle Driving Range](#),” *IEEE Transactions on Automation Science and Engineering*, volume 21, number 3, pages 4003–4015, July 2024.
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- [33] **Jun Chen***, Lei Zhang and Weinan Gao, “[Reconfigurable Model Predictive Control for Large Scale Distributed Systems](#),” *IEEE Systems Journal*, volume 18, number 2, pages 965–976, June 2024.
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- [24] Zaiyu Gu, Guojiang Xiong*, Xiaofan Fu, Ali Wagdy Mohamed, Mohammed Azmi Al-Betar, Hao Chen and **Jun Chen**, “[Extracting Accurate Parameters of Photovoltaic Cell Models via Elite Learning Adaptive Differential Evolution](#),” *Energy Conversion and Management*, volume 285, pages 1–25, June 2023.
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- [21] **Jun Chen***, Zhaodong Zhou, Ziwei Zhou, Xia Wang and Boryann Liaw, “[Impact of Battery Cell Imbalance on Electric Vehicle Range](#),” *Green Energy and Intelligent Transportation*, volume 1, number 3, pages 1–8, December 2022.
- [20] **Jun Chen*** and Ratnesh Kumar, “[Stochastic Failure Prognosis of Discrete Event Systems](#),” *IEEE Transactions on Automatic Control*, volume 67, number 10, pages 5487–5492, October 2022.
- [19] **Jun Chen*** and Junhui Zhao, “[Generating Synthetic Wind Speed Scenarios using Artificial Neural Networks for Probabilistic Analysis of Hybrid Energy Systems](#),” *International Journal of Modelling, Identification and Control*, volume 41, number 3, pages 183–192, July 2022.
- [18] Xuan Xie, Guojiang Xiong*, **Jun Chen** and Jing Zhang, “[Universal Transparent Artificial Neural Network-Based Fault Section Diagnosis Models for Power Systems](#),” *Advanced Theory and Simulations*, volume 5, number 4, pages 1–12, April 2022.
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- [14] Xiang Yin, **Jun Chen**, Zhaojian Li and Shaoyuan Li, “[Robust Fault Diagnosis of Stochastic Discrete Event Systems](#),” *IEEE Transactions on Automatic Control*, volume 64, number 10, pages 4237–4244, October 2019.
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- [10] **Jun Chen**, Mariam Ibrahim and Ratnesh Kumar, “[Quantification of Secrecy in Partially Observed Stochastic Discrete Event Systems](#),” *IEEE Transactions on Automation Science and Engineering*, volume 14, number 1, pages 185–195, January 2017.
- [9] Jong S. Kim, **Jun Chen** and Humberto E. Garcia, “[Modeling, Control, and Dynamic Performance Analysis of a Reverse Osmosis Desalination Plant Integrated within Hybrid Energy Systems](#),” *Energy*, volume 112, pages 52–66, October 2016.
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- [6] Humberto E. Garcia, **Jun Chen**, Jong S. Kim, Richard B. Vilim, William R. Binder, Shannon M. Bragg-Sitton, Richard D. Boardman, Michael G. McKellar and Christiaan J. J. Paredis, “[Dynamic Performance Analysis of Two Regional Nuclear Hybrid Energy Systems](#),” *Energy*, volume 107, pages 234–258, July 2016.
- [5] **Jun Chen** and Ratnesh Kumar, “[Fault Detection of Discrete-Time Stochastic Systems Subject to Temporal Logic Correctness Requirements](#),” *IEEE Transactions on Automation Science and Engineering*, volume 12, number 4, pages 1369–1379, October 2015. (**IEEE Best Paper Award**: [link](#))
- [4] **Jun Chen** and Ratnesh Kumar, “[Stochastic Failure Prognosability of Discrete Event Systems](#),” *IEEE Transactions on Automatic Control*, volume 60, number 6, pages 1570–1581, June 2015.
- [3] **Jun Chen** and Ratnesh Kumar, “[Failure Detection Framework for Stochastic Discrete Event Systems with Guaranteed Error Bounds](#),” *IEEE Transactions on Automatic Control*, volume 60, number 6, pages 1542–1553, June 2015.
- [2] **Jun Chen** and Ratnesh Kumar, “[Polynomial Test for Stochastic Diagnosability of Discrete Event Systems](#),” *IEEE Transactions on Automation Science and Engineering*, volume 10, number 4, pages 969–979, October 2013.
- [1] Lingfei Zhi, **Jun Chen**, Peter Molnar and Aman Behal, “[Weighted Least-Squares Approach for Identification of a Reduced-Order Adaptive Neuronal Model](#),” *IEEE Transactions on Neural Networks and Learning Systems*, volume 23, number 5, pages 834–840, May 2012.

Peer Reviewed Conference Articles

- [41] Artem Abzaliev, Rutchanon Hatasen, Hussein Kokash, Linda Zhu, **Jun Chen** and Mihai G. Burzo, “Machine Learning and Sensory Integration for Real-Time Road Surface Assessment,” *ASME International Mechanical Engineering Congress & Exposition*, Memphis, TN, USA, November 16–20, 2025.
- [40] Ashwin Devanga, Tingjun Lei*, Jueming Hu, **Jun Chen** and Chaomin Luo, “Trustworthy Cyber-Resilient Reinforcement Learning for Secure Navigation under Adversarial Attack,” *IEEE Cyber Awareness and Research Symposium*, Grand Forks, ND, October 27–30, 2025.
- [39] Wanqun Yang, Mohammad R. Hajidavalloo, Zhaojian Li and **Jun Chen***, “NMPC-based Cell-Level Thermal Management of EV Batteries in Low Temperature Environment,” *Modeling, Estimation and Control Conference*, Pittsburgh, PA, USA, October 5–8, 2025.
- [38] Hussein Alawsi, Zhaodong Zhou, Ali Irshayyid and **Jun Chen***, “RL-assisted Model Predictive Control for Automated Parking Systems,” *IEEE International Conference on Unmanned Systems*, Changzhou, China, September 18–19, 2025.
- [37] Ali Irshayyid and **Jun Chen***, “GNN-Based Surrogate Model for Reconfigurable Battery Packs,” *IEEE Conference on Control Technology and Applications*, San Diego, CA, August 25–27, 2025.
- [36] Lateefa Shibah Tusuubira, Wen-Chiao Lin* and **Jun Chen**, “[Fault Mitigation for Autonomous Vehicles with Reduced Front Steering Capability](#),” *IEEE International Conference on Prognostics and Health Management*, Denver, CO, June 9–11, 2025, 2025.
- [35] Cory Ness and **Jun Chen***, “[Extended Kalman Filter for Flywheel Systems](#),” *IEEE International Conference on Electro Information Technology*, Valparaiso, IN, May 29–31, 2025.
- [34] Zhaodong Zhou, Yu Jiang and **Jun Chen***, “[Exploring Optimal Pumping Strategy in Active Suspension Systems for Speed Maximization during Downhill Motion](#),” *12th IFAC Symposium on Intelligent Autonomous Vehicles*, Phoenix, AZ, May 7–9, 2025.
- [33] Luke Nukulaj, Adam Kidwell, Connor Homayouni, Alex Fillmore, Darrin Hanna and **Jun Chen**, “[Optimal FPGA Implementation of Dense Extended Kalman Filter for Simultaneous Cell State Estimation](#),” *IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, Springfield, MA, August 11–14, 2024.
- [32] Muye Jia, Mingyuan Tao, Meng Xu*, Peng Zhang, Jiayi Qiu, Gerald Bergsieker and **Jun Chen**, “[RL-MPC: Reinforcement Learning Aided Model Predictive Controller for Autonomous Vehicle Lateral Control](#),” *2024 SAE World Congress*, Detroit, MI, April 16–18, 2024.

- [31] Zhaodong Zhou and **Jun Chen***, “[Modeling Driver Lane Change Behavior Using Inverse Reinforcement Learning](#),” *IEEE International Conference on Computing and Machine Intelligence*, Mount Pleasant, MI, April 13-14, 2024.
- [30] [Ali Irshayyid](#) and **Jun Chen***, “[Highway Merging Control Using Multi-Agent Reinforcement Learning](#),” *IEEE International Conference on Computing and Machine Intelligence*, Mount Pleasant, MI, April 13-14, 2024.
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- [28] Zhaodong Zhou, **Jun Chen***, Mingyuan Tao, Peng Zhang and Meng Xu, “[Experimental Validation of Event-Triggered Model Predictive Control for Autonomous Vehicle Path Tracking](#),” *IEEE International Conference on Electro Information Technology*, Romeoville, IL, May 18–20, 2023. (**Best Paper Award**: [link](#))
- [27] Yang Chen, **Jun Chen***, Chenang Liu, Guodong Liu, Maximiliano Ferrari and Aditya Sundararajan, “[Integrated Modeling and Optimal Operation of Multi-Energy System for Coastal Community](#),” *IEEE International Conference on Electro Information Technology*, Romeoville, IL, May 18–20, 2023.
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- [24] [Ranya Badawi](#) and **Jun Chen***, “[Performance Evaluation of Event-Triggered Model Predictive Control for Boost Converter](#),” *2022 IEEE Vehicle Power and Propulsion Conference*, Merced, CA, November 1–4, 2022.
- [23] Man Liang* and **Jun Chen**, “[A Conceptual Design of Barking Drones Fleet Management to Detect and Repulse Cattle](#),” *21st Asia Pacific Automotive Engineering Conference*, Melbourne, Australia, October 3–5, 2022.
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- [17] **Jun Chen*** and Junhui Zhao, “[Synthetic Wind Speed Scenarios Generation using Artificial Neural Networks for Probabilistic Analysis of Hybrid Energy Systems](#),” *2021 IEEE International Symposium on Industrial Electronics*, Kyoto, Japan, June 20–23, 2021.
- [16] **Jun Chen***, Man Liang and Xu Ma, “[Probabilistic Analysis of Electric Vehicle Energy Consumption Using MPC Speed Control and Nonlinear Battery Model](#),” *2021 IEEE Green Technologies Conference*, Denver, CO, April 7–9, 2021.
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