

Wenhan Cao

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RESEARCH INTERESTS

My research interests are optimal filtering & optimal control, with applications to autonomous vehicles.

EDUCATION

The University of Manchester, Manchester, UK

Research Partner Student (Visiting Ph.D. Student), Department of Computer Science, January 2023-now

Supervisor: Dr. Wei Pan, Senior Lecturer of Computer Science

Tsinghua University, Beijing, China

Ph.D. Student, School of Vehicle and Mobility, September 2019-now

Supervisor: Dr. Shengbo Eben Li, Professor of Mechanical Engineering

Beijing Jiaotong University, Beijing, China

Bachelor of Engineering, School of Electrical Engineering, September 2015-June 2019

GPA ranking: 1/305

SELECTED PAPERS

Cao, W., Liu, C., Lan, Z., Piao, Y., & Li, S. E. *Generalized Moving Horizon Estimation for Nonlinear Systems with Robustness to Measurement Outliers*. Accepted in 2023 American Control Conference (ACC). IEEE.

Cao, W., Duan, J., Li, S. E., Chen, C., Liu, C., & Wang, Y. (2022, December). *Primal-Dual Estimator Learning Method with Feasibility and Near-Optimality Guarantees*. In 2022 IEEE 61st Conference on Decision and Control (CDC) (pp. 4104-4111). IEEE.

Duan, J., **Cao, W.**, Zheng, Y., & Zhao, L. (2022, December). *On the Optimization Landscape of Dynamic Output Feedback: A Case Study for Linear Quadratic Regulator*. In 2022 IEEE 61st Conference on Decision and Control (CDC) (pp. 4040-4045). IEEE.

Cao, W., Chen, J., Duan, J., Li, S. E., Lyu, Y., Gu, Z., & Zhang, Y. (2021). *Reinforced Optimal Estimator*. IFAC-PapersOnLine, 54(20), 366-373.

HONORS & AWARDS

Student Best Paper Finalist of 2021 IFAC Modeling, Estimation and Control Conference, Texas, USA, 2021

Outstanding Graduates of Beijing Jiaotong University, Beijing, China, 2019

National Scholarship, Beijing, China, 2016

The First Prize Scholarship, Beijing, China, 2016 – 2018

INVITED TALKS & CONFERENCES PRESENTATIONS

Learning-based state estimation methods at the Technical University of Munich, Munich, Germany (Online Presentation), hosted by Prof. Sandra Hirche, February 2023.

Primal-Dual Estimator Learning Method with Feasibility and Near-Optimality Guarantees in 2022 IEEE 61st Conference on Decision and Control, Cancún, Mexico (Online Presentation), December 2022.

Reinforced Optimal Estimator in 2021 IFAC Modeling, Estimation and Control Conference, Texas, USA (Online Presentation), October 2021.

Accelerated Inverse Reinforcement Learning with Randomly Pre-sampled Policies for Autonomous Driving Reward Design in 2019 IEEE Intelligent Transportation Systems Conference, Auckland, New Zealand, October 2019.

LANGUAGES & SKILLS

Language – English IELTS 7.0 (Listening 8.0, Reading 7.5, Speaking 6.5, Writing 6.0)

Programming – Proficient in MATLAB/Simulink and Python programming (PyTorch), familiar with C/C++