

## Wenhan Cao

Current Address: The University of Manchester, M13 9PL, UK

Telephone: +44 7536 280564 | E-mail: wenhan.cao@postgrad.manchester.ac.uk; cwh19@mails.tsinghua.edu.cn

## 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++