

Chengyuan ZHANG

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CONTACT

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EDUCATION

McGill University

Montreal, Quebec, Canada

Ph.D. student (22'-), Master of Science (20'-22'), supervised by Prof. Lijun Sun

Sept. 2020 - Present

- **Cumulative GPA: 4.00/4.00;**
- **Scholarships:** Ron Rice Memorial Award, 2023; Graduate Research Enhancement and Travel Awards, 2023; CIRRELT Doctoral Scholarship, 2023; Graduate Mobility Award, 2022-2023; Mitacs Globalink Research Award, 2022-2023; McGill Engineering Doctoral Award (MEDA), 2022-2025; FRQNT Doctoral Scholarship (B2X), 2023-2027; FRQNT Master's Scholarship (B1X), 2022-2023; CIRRELT Doctoral Scholarship, 2023; CIRRELT Master's Scholarship, 2022; Graduate Excellence Fellowship Awards, 2020; IVADO Excellence Scholarships - Msc, 2020-2022;
- **Courses:** [COMP588@McGill](#), [IFT6135@UdeM](#), [ECSE683@McGill](#), [COMP540@McGill](#), [CIV1532H@UofT](#)
- Fast tracked to the Ph.D. program in 2022 with 4.00/4.00 Master's GPA;

Chongqing University

Chongqing, China

B.S. in Vehicle Engineering

Sept. 2015 – June 2019

- **Selected scholarships and awards:** National Scholarship, 2017; Outstanding Undergraduate Thesis Award, 2019; Outstanding Graduate of Chongqing University, 2019; Outstanding Student Award (top 3%), 2018 and 2017;
- Selected to **Excellent Student Program** (top 5%, on basis of outstanding academic performance;)
- Completed extensive coursework in **Electronics Science and Technology** (2015-2016.)

University of Pennsylvania

Philadelphia, Pennsylvania, USA

Exchange Student (Winter School)

Jan. 2018 – Feb. 2018

PREPRINTS

- [1] **Zhang, C.**, Wang, W., & Sun, L. (2023). Calibrating Car-Following Models via Bayesian Dynamic Regression. arXiv preprint arXiv:2307.03340. [[arXiv](#)][[Github](#)]
- [2] **Zhang, C.**, & Sun, L. (2023). Bayesian Calibration of the Intelligent Driver Model. arXiv preprint arXiv:2210.03571. [[arXiv](#)][[Github](#)][[presentation](#)][[poster](#)]
- [3] Chen, X., **Zhang, C.**, Zhao, X. L., Saunier, N., & Sun, L. (2022). Nonstationary Temporal Matrix Factorization for Multivariate Time Series Forecasting. arXiv preprint arXiv:2203.10651. [[arXiv](#)] [[slides](#)] [[Github](#)] [[blog](#)]

JOURNALS

- [1] Chen, X., **Zhang, C.**, Cheng, Z., Hou, Y., & Sun, L. (2023). A Bayesian Gaussian Mixture Model for Probabilistic Modeling of Car-Following Behaviors. *IEEE Transactions on Intelligent Transportation Systems*. [[paper](#)]
- [2] Chen, X., **Zhang, C.** (equal contribution), Chen, X., Saunier, N., & Sun, L. (2022). Discovering dynamic patterns from spatiotemporal data with time-varying low-rank autoregression. *IEEE Transactions on Knowledge and Data Engineering* (accepted). [[paper](#)] [[arXiv](#)] [[data & code](#)] [[blog](#)]
- [3] **Zhang, C.**, Zhu, J., Wang, W., & Xi, J. (2020). Spatiotemporal Learning of Multivehicle Interaction Patterns in Lane-Change Scenarios. *IEEE Transactions on Intelligent Transportation Systems*. [[demo](#)] [[paper](#)] [[project website](#)] [[Github](#)]
- [4] **Zhang, C.**, Zhang, X., Ye, H., Wei, M., & Ning, X. (2019). An Efficient Parking Solution: A Cam-Linkage Double-Parallelogram Mechanism Based 1-Degrees of Freedom Stack Parking System. *Journal of Mechanisms and Robotics*, 11(4), 045001. [[demo](#)] [[paper](#)]

- [5] **Zhang, C.**, & Xiao, J. (2018). Chaotic Behavior and Feedback Control of Magnetorheological Suspension System with Fractional-Order Derivative. *Journal of Computational and Nonlinear Dynamics*, 13(2), 021007. [\[paper\]](#)

CONFERENCES

- [1] **Zhang, C.**, Chen, R., Zhu, J., Wang, W., Liu, C., & Sun, L. (2023). Interactive Car-Following: Matters but NOT Always. *2023 IEEE Intelligent Transportation Systems Conference (ITSC)*. [\[arXiv\]](#)
- [2] Wang, W., **Zhang, C.**, Wang, P., & Chan, C. (2020). Learning Representations for Multi-Vehicle Spatiotemporal Interactions with Semi-Stochastic Potential Fields. *2020 IEEE Intelligent Vehicles Symposium (IV)*. [\[paper\]](#)
- [3] **Zhang, C.**, Zhu, J., Wang, W., & Zhao, D. (2019). A General Framework of Learning Multi-Vehicle Interaction Patterns from Videos. *2019 IEEE Intelligent Transportation Systems Conference (ITSC)*. [\[paper\]](#)

BOOKS

- [1] Wang, W., Wang, L., **Zhang, C.**, Liu, C., & Sun, L. (2022). Social Interactions for Autonomous Driving: A Review and Perspectives. *Foundations and Trends in Robotics: Vol. 10, No. 3-4*, pp 197–376. [\[book\]](#) [\[arXiv\]](#)

PATENT

- [1] [CN108222589B](#), Cam-connecting rod type mechanical three-dimensional parking device. **Zhang, C.**, Zhang, X., Ye, H., Shi, J., Wang, M., & Ning, X. *Chongqing University*.

ACADEMIC EXPERIENCE

Carnegie Mellon University (Robotics Institute) Pittsburgh, Pennsylvania, USA
Visiting Student Researcher (supervised by Prof. Changliu Liu) Jan. 2023 – Aug. 2023

University of California, Berkeley (Department of Mechanical Engineering) Berkeley, California, USA
Visiting Student Researcher (supervised by Prof. Masayoshi Tomizuka) Sept. 2019 – Jan. 2020

DeeCamp 2020, DeeCamp 2019 (Sinovation Ventures) Guangzhou, Guangdong & Beijing, P.R. China
Deep Learning Summer Camp Participant June 2020 – Aug. 2020 (online), July 2019 – Aug. 2019

Carnegie Mellon University (Department of Mechanical Engineering) Pittsburgh, Pennsylvania, USA
Visiting Student Researcher (supervised by Prof. Ding Zhao) July 2018 – Oct. 2018

Chongqing University Formula SAE (Society of Automotive Engineers) Chongqing, P.R. China
Member of CQU-FSAE Transmission Group June 2016 – Jan. 2018

TEACHING EXPERIENCE

Traffic Engineering and Simulation (by Prof. Lijun Sun) 2022 Fall and 2023 Fall
Teaching Assistant, Department of Civil Engineering, McGill University

Basics of Machine Learning and Data Analysis (by Prof. Pradeep Ravikumar) 2022
Teaching Assistant (Online), Department of Computer Science, Carnegie Mellon University

Statistical Machine Learning (by Prof. Dino Sejdinovic) 2020 and 2022
Teaching Assistant (Online), Department of Statistics, Oxford University

ACADEMIC ACTIVITIES

- Workshop Organizer:
 - 2nd SIAM workshop on IEEE IV24', Jeju Shinhwa World, Jeju Island, Korea, 2024. [[Website](#)]
 - 1st SIAM workshop on IEEE IV23', Anchorage, Alaska, USA, 2023. [[Website](#)]
- Journal Reviewer:
 - IEEE Transactions on Intelligent Transportation Systems;
 - IEEE Transactions on Intelligent Vehicles;
 - Transportation Research Part C;
 - ASME Journal of Mechanism and Robotics;
 - ASME Journal of Mechanism Design;
 - Physica A: Statistical Mechanics and its Applications;
- Conference Reviewer:
 - IEEE International Conference on Intelligent Transportation Systems;
 - 2023 Symposium on Machine Learning for Autonomous Driving collocated with NeurIPS;
- Graduate Student member of the IEEE & IEEE Intelligent Transportation Systems Society (ITSS);
- Student member of Chinese Overseas Transportation Association (COTA);
- Student member of Interuniversity Research Centre on Enterprise Networks, Logistics and Transportation (CIRRELT);
- Member of the Society of Automotive Engineers (SAE) of China;