

Chengyuan ZHANG

Department of Civil Engineering, McGill University (Last Updated Date: November 11, 2024)

CONTACT

- Homepage: <https://chengyuan-zhang.github.io>;
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EDUCATION

McGill University Montreal, Quebec, Canada
Ph.D. Candidate (22'-), Master of Science (20'-22'), supervised by Prof. Lijun Sun Sept. 2020 - Present

- **Cumulative GPA: 4.00/4.00**;
- **Courses:** [COMP588@McGill](#), [IFT6135@UdeM](#), [ECSE683@McGill](#), [COMP540@McGill](#), [CIV1532H@UofT](#)
- Fast tracked to the Ph.D. program in 2022 winter 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] 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] **Zhang, C.**, Wang, W., & Sun, L. (2023). Calibrating Car-Following Models via Bayesian Dynamic Regression. Transportation research part C: emerging technologies. (Accepted to ISTTT25 Special Issue) [[TR PartC](#)][[arXiv](#)][[Github](#)]
- [2] **Zhang, C.**, & Sun, L. (2023). Bayesian Calibration of the Intelligent Driver Model. IEEE Transactions on Intelligent Transportation Systems. [[IEEE TITS](#)][[arXiv](#)][[Github](#)][[presentation](#)][[poster](#)]
- [3] 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. [[IEEE TITS](#)]
- [4] Chen, X., **Zhang, C.** (equal contributions), 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). [[IEEE TKDE](#)] [[arXiv](#)] [[data & code](#)] [[blog](#)]
- [5] **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](#)] [[IEEE TITS](#)] [[project website](#)] [[Github](#)]
- [6] **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](#)] [[ASME JMR](#)]
- [7] **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. [[ASME JCND](#)]

CONFERENCES

- [1] **Zhang, C.**, Chen, K., Zhu, M., Yang, H., & Sun, L. (2024). Learning Car-Following Behaviors Using Bayesian Matrix Normal Mixture Regression. *2024 IEEE Intelligent Vehicles Symposium (IV)*. [[arXiv](#)]
- [2] **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](#)]
- [3] 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](#)]
- [4] **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
<i>Visiting Student Researcher (supervised by Prof. Changliu Liu)</i>	Jan. 2023 – Aug. 2023

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

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

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

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

TEACHING EXPERIENCE

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

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

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

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:

- Transportation Research Part C;	- ASME Journal of Mechanism Design;
- IEEE Transactions on Intelligent Transportation Systems;	- Physica A: Statistical Mechanics and its Applications;
- IEEE Transactions on Intelligent Vehicles;	- Automotive Innovation;
- IEEE Sensors Journal;	- Advanced Engineering Informatics;
- ASME Journal of Mechanism and Robotics;	
- Conference Reviewer:

- IEEE International Conference on Intelligent Transportation Systems (ITSC), 22-24;	- The 5th Symposium on Management of Future Motorway and Urban Traffic Systems (MFTS), 2024;
- Symposium on Machine Learning for Autonomous Driving collocated with NeurIPS, 2023;	- RSS 2024 Workshop on Autonomous Vehicles Across Scales (AVAS), 2024;
- Transportation Research Board Annual Meeting;	- NeurIPS Bayesian Decision-making and Uncertainty Workshop, 2024;
- 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;

AWARDS & SCHOLARSHIPS

- The Honorable Mention Award for the 2024 Clifford Spiegelman Student Paper Competition, 2024
- Graduate Mobility Award, McGill University, 2022-2023
- Graduate Research Enhancement and Travel Awards, McGill University, 2023
- Ron Rice Memorial Award, McGill University, 2023
- Mitacs Globalink Research Award - Abroad, 2022-2023
- McGill Engineering Doctoral Award (MEDA), McGill University, 2022-2025
- FRQNT Master's Scholarship (B1X), 2022-2023
- FRQNT Doctoral Scholarship (B2X), 2023-2027
- CIRRELT Doctoral Scholarship of Excellence - Early Stages, 2023
- CIRRELT Master's Scholarship of Excellence, 2022
- Graduate Excellence Fellowship Awards, McGill University, 2020
- IVADO Excellence Scholarships - Msc, 2020-2022
- Outstanding Team Award & Best Application Award at DeeCamp, China, 2019
- Outstanding Graduate of Chongqing University, 2019
- First Prize in the 2018 National College Mechanical Innovation Competition (TOP #10 in China), 2018
- National Scholarship, China, 2017
- First Prize in the Chongqing University Physics Contest (#1/500 in Chongqing University), 2015