

**Hongchao Zhang, PhD Student**  
Dept. of Electrical and System Engineering  
Washington University in St. Louis  
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Google Scholar Page: [Link](#)

### Education

2025 Ph.D., Electrical Engineering, Washington University in St. Louis, St. Louis, MO, USA

- Advisor: Prof. Andrew Clark.

2020 M.S., Electrical & Computer Engineering, Worcester Polytechnic Institute, Worcester, MA, USA

- Advisor: Prof. Andrew Clark.

2018 B.E., Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China

### Research Interests

Control and security of autonomous Cyber-Physical Systems (CPS); Learning-based Control; Resilience; Neural Networks; Deep learning

### Master Thesis

Hongchao Zhang. Control Barrier Functions for Safe CPS Under Sensor Faults and Attacks. Diss. Worcester Polytechnic Institute, 2020.

### Publications

1. Zhang, Hongchao, et al. "Cooperative Perception for Safe Control of Autonomous Vehicles under LiDAR Spoofing Attacks." arXiv preprint arXiv:2302.07341 (2023).
2. H. Zhang, S. Cheng, L. Niu, and A. Clark, "Barrier Certificate based Safe Control for LiDAR-based Systems under Sensor Faults and Attacks" Accepted by IEEE Conference on Decision and Control (CDC), 2022
3. Z. Li, H. Zhang, and A. Clark, "Safe and Resilient Switching Control of Hybrid Systems." Accepted by IEEE Conference on Decision and Control (CDC), 2022
4. L. Niu, H. Zhang and A. Clark, "Safety-Critical Control Synthesis for Unknown Sampled-Data Systems via Control Barrier Functions," 60th IEEE Conference on Decision and Control (CDC), 2021, pp. 6806-6813, doi: 10.1109/CDC45484.2021.9683019.
5. H. Zhang, Z. Li and A. Clark, "Model-based Reinforcement Learning with Provable Safety Guarantees via Control Barrier Functions," IEEE International Conference on Robotics and Automation (ICRA), 2021, pp. 792-798, doi: 10.1109/ICRA48506.2021.9561253.
6. A. Clark, Z. Li and H. Zhang, "Control Barrier Functions for Safe CPS Under Sensor Faults and Attacks," 59th IEEE Conference on Decision and Control (CDC), 2020, pp. 796-803, doi: 10.1109/CDC42340.2020.9303766.

### Scholarship and Honors

1. 2023 General Motors AutoDriving Security Award at the inaugural ISOC Symposium on Vehicle Security and Privacy at the Network and Distributed System Security Symposium (NDSS)

2. Shao-Fang and Tsu-Chin Lee Endowed Fellowship (2022)

**Activities**

- Public Demonstration at WPI TouchTomorrow 2019, 2022

**Patents**

- Hongchao Zhang, Patent- A following housekeeper robot (Patent No.: 201710406907.1)
- Hongchao Zhang, Patent- Laptop Heat Exchange Cupholder (Patent No.: ZL 2014 2 0806400.7)