Sheng WANG

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Research Interests

End-to-end planning, Self-supervised learning, Reinforcement learning, LLM-based multi-modality learning, Diffusion models, Distillation, Autonomous driving, Robotics, etc.

Education

2021–now **The Hong Kong University of Science and Technology,** HongKong SAR
Doctor of Philosophy: *Robotics and Autonomous Systems*, supervised by Prof. Pedro V. SANDER and Prof. Junwei LIANG.

2018–2020 **École Centrale de Nantes,** France
Master of Science: *Advanced Robotics*, advised by Prof. Olivier Kermorgant.

2014–2018 **Harbin Institute of Technology,** China
Bachelor of Science: *Optoelectronic Information Technology and Engineering*, advised by Prof. Wenjun LIU.

Intern Experience

02/2020–08/2020 **Planning and Control Group, Meituan,** Beijing
Research Intern, advised by Mr. Xiao LI and Dr. Yu BAI.

06/2019 – 08/2019 **Smart Factory Laboratory, AIIT, Peking University,** Hangzhou
Research Intern, advised by Dr. Xi CHEN.

Professional Skills

- Programming Languages: Python, Matlab, C/C++.
- Tools: PyTorch/PyTorch-Lightning, ROS, Linux, Docker, Git, Hugging Face.

Selected Publications

1. **S. Wang**, Y. Tian, X. Mei, *et al.*, *Lhpf: Look back the history and plan for the future in autonomous driving*, [Under review], 2024. [Online]. Available: https://arxiv.org/abs/2411.17253.
2. **S. Wang**, g. Sun, F. Ma, T. Hu, Y. Song, L. Zhu, *et al.*, "Dragtraffic: A non-expert interactive and point-based controllable traffic scene generation framework," in *IEEE/RSJ International Conference on Intelligent Robots and Systems*, [IROS], 2024.
3. **S. Wang**, Y. Chen, J. Cheng, X. Mei, Y. Song, *et al.*, "Improving autonomous driving safety with pop: A framework for accurate partially observed trajectory predictions," in *IEEE International Conference on Robotics and Automation*, [ICRA], 2024.
4. **S. Wang**, R. Xin, J. Cheng, X. Mei, *et al.*, "Fcus: Traffic rule-aware vehicle trajectory forecasting using continuous unlikelihood and signal temporal logic feature," in *IEEE International Conference on Robotics and Biomimetics*, [ROBIO], 2023.
5. J. Cheng, R. Xin, **S. Wang**, *et al.*, "Mpnp: Multi-policy neural planner for urban driving," in *IEEE/RSJ International Conference on Intelligent Robots and Systems*, [IROS], 2022.

6. F. Ma, Y. Liu, **S. Wang**, J. Wu, W. Qi, *et al.*, "Self-supervised drivable area segmentation using lidar's depth information for autonomous driving," in *IEEE/RSJ International Conference on Intelligent Robots and Systems*, [IROS], 2023.
7. F. Ma, **S. Wang**, *et al.*, "An automatic multi-lidar extrinsic calibration algorithm using corner planes," in *IEEE International Conference on Robotics and Biomimetics*, [ROBIO Best Paper Finalist], 2022.
8. H. Ren, **S. Wang**, X. Yuan, J. Chen, Y. Zhang, and X. Xiang, "A flight test based deep learning method for transition heat flux prediction in hypersonic flow," in *Physics of Fluids*, [Physics of Fluids], 2022.
9. Y. Chen, J. Cheng, L. Gan, **S. Wang**, H. Liu, X. Mei, *et al.*, "Ir-stp: Enhancing autonomous driving with interaction reasoning in spatio-temporal planning," in *IEEE Transactions on Intelligent Transportation Systems*, [TITS], 2024.
10. Y. Chen, J. Cheng, **S. Wang**, *et al.*, "Enhancing campus mobility: Achievements and challenges of autonomous shuttle" snow lion"," in *IEEE Robotics Automation Magazine*, [RAM], 2024.
11. R. Xin, H. Liu, Y. Chen, **S. Wang**, *et al.*, "A generic trajectory planning method for constrained all-wheel-steering robots," in *IEEE/RSJ International Conference on Intelligent Robots and Systems*, [IROS], 2024.
12. T. Hu, J. Jiao, Y. Xu, H. Liu, **S. Wang**, *et al.*, "Dhp-mapping: A dense panoptic mapping system with hierarchical world representation and label optimization techniques," in *IEEE/RSJ International Conference on Intelligent Robots and Systems*, [IROS], 2024.
13. G. Sun, **S. Wang**, L. Zhu, M. Liu, and J. Ma, *Gdts: Goal-guided diffusion model with tree sampling for multi-modal pedestrian trajectory prediction*, [Under review], 2024. arXiv: `2311.14922 [cs.CV]`.

Conference Presentations

- IROS 2024, Abudhabi, UAE.
- ICRA 2024, Yokohama, Japan.
- ROBIO 2023, Samui, Thailand.

Reviewer Services

- IEEE International Conference on Robotics and Automation (ICRA)
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- IEEE International Conference on Robotics and Biomimetics (ROBIO)
- IEEE Robotics and Automation Letters (RA-L)
- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)

Awards

- Second Prize of Provincial Physics Science and Technology Innovation Award, China, 2016.
- École Centrale de Nantes Elite Scholarship, ECN, France, 2018.
- Postgraduate Studentship, HKUST, Hongkong SRA, 2021-present.