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Li-Ke Ma
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PROFILE

- Asia Physics Olympiad (APhO) Gold Medalist; Ph.D. in Computer Science from Tsinghua University (joint program with MSRA). Research focused on deep reinforcement learning for motion control and physics-based simulation, with solid theoretical foundations and engineering proficiency in RL.
- 5 years of R&D experience in deep learning for autonomous driving, spanning the full pipeline from data infrastructure and model design to production OTA deployment. Hands-on expertise in large-scale model training and system deployment.
- Actively following advances in LLM and Agent technologies, I seek to contribute to frontier exploration in Agent RL / Agent RSI.

EDUCATION

Tsinghua University **Beijing, China**
Ph.D. in Computer Science **Sep 2015 - Jul 2021**

- **Thesis:** Computational Design and Deep Reinforcement Learning Based Motion Control of Soft Pneumatic Robots
- **Selected Courses:** Numerical Computing, Optimization Methods, Machine Learning, Computer Graphics, Computational Geometry

Peking University **Beijing, China**
B.S. in Physics **Sep 2011 - Jul 2015**

- **GPA:** 3.79/4.00 (top 5%)
- **Selected Courses:** Linear Algebra, Computational Mathematics, Statistical Mechanics, Quantum Mechanics, General Relativity

EXPERIENCE

Autonomous Driving Research Engineer **Beijing, China**
WeRide.ai **Jul 2021 - May 2026**
Training Data Pipeline (Lead) Jul 2021 - Oct 2024

- Built a data resampling pipeline that yields 5% metric improvement on only 30% of the dataset via geographic location and information entropy weighted sampling.
- Designed an online label stitching scheme that reduces storage by 20× with <10% extra compute.
- Built a distributed tagging framework (pybind + protobuf, 64×32 concurrency) traversing 10k-hour datasets in 5 minutes.

Model-Based Interactive Traffic Agent (Lead) Jul 2022 - Oct 2024

- Designed a VAE-based interactive model with 8-dim latent code per agent, achieving trajectory reconstruction ADE of 0.19 and collision rate of 0.1% (on par with GT).
- Devised a controllable inference scheme driven by target trajectory and follow intensity $([0,1])$, covering conservative following to aggressive lane changes.

Two-Stage E2E Model (Core Developer) Jul 2023 - Nov 2024

- Built a model jointly predicting obstacle trajectories and ego plans from scene inputs; achieved L2 production readiness.
- Introduced a multi-dimensional trajectory scoring mechanism (safety, comfort, navigation) with contrastive learning for trajectory ranking.

One-Stage E2E Model (Core Developer)

Nov 2024 - May 2026

- Developed a transformer-based planning head that decodes ego trajectory from scene features; deployed to production via OTA.
- Diagnosed 1° IMU-induced heading bias causing lateral deviations (adaptive correction applied)
- Built an occupancy flow prediction head for collision estimation as safety fallback.

SELECTED AWARDS

HuangPu Elite Talents	HuangPu Gov., Guangzhou	Dec 2022
CSC Scholarship	China Scholarship Council, China	Aug 2018
Excellent Graduate Student	Peking Univ., Beijing	Jun 2015
National Scholarship (top 1%)	Department of Education, China	Dec 2013
Excellent Student (top 1%)	Peking Univ., Beijing	Dec 2013
Gold Medal of 12th Asia Physics Olympiad (APhO)	12 th APhO Committee, Israel	May 2011

PUBLICATIONS

- Li-Ke Ma**, Zeshi Yang, Xin Tong, Baining Guo, KangKang Yin: *Learning and Exploring Motor Skills with Spacetime Bounds*. Computer Graphics Forum (Eurographics), 40(2), 2021.
- Li-Ke Ma**, Zeshi Yang, Baining Guo, KangKang Yin: *Towards Robust Direction Invariance in Character Animation*. Computer Graphics Forum (Pacific Graphics), 38(7), 2019.
- Li-Ke Ma***, Yizhong Zhang*, Yang Liu, Kun Zhou, Xin Tong: *Computational Design and Fabrication of Soft Pneumatic Objects with Desired Deformations*. ACM Transactions on Graphics (SIGGRAPH Asia), 36(6), 2017.

SKILLS

- **Reinforcement Learning:** Core Ph.D. research area; proficient in mainstream RL algorithms including PPO and SAC; actively following advances such as GRPO.
- **Deep Learning:** Proficient in PyTorch (7+ years); experienced with generative architectures including Transformer, VAE, and GAN, with in-depth experience in trajectory prediction and motion planning. Experienced in large-scale model training and deployment.
- **Programming & Engineering:** C/C++ (10+ years; computer graphics, physics simulation, autonomous driving systems); Python (10+ years; scientific computing, ML/DL).