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Li-Ke Ma
Beijing, China

EXPERIENCE

Research Engineer

WeRide.ai

Beijing, China

Jul 2021 - Present

- Responsible for developing state-of-the-art model for prediction module.
- **Training Data Management/Analysis** Jul 2021 - Oct 2024
 - Developed a resampling method that yields a 5% gain in all model metrics while utilizing only 30% of the dataset.
 - Designed a data I/O scheme for model training, resulting in a 20-fold improvement in data storage density.
 - Developed a distributed data-tagging framework capable of traversing a 10k-hour dataset in minutes.
- **Model-based Interactive Agent** Jul 2022 - Oct 2024
 - Designed a framework integrating model-based agents into scene reconstruction to enhance the accuracy of evaluation beyond the limitations of log replay.
 - Developed a VAE-based model training framework that learns agent-environment interaction mechanisms from human driving data, resulting in controllable and interactive agent models.
 - Proposed a signed distance field (SDF)-based input feature that reduced agent collision metrics by 80%.
- **End-to-End Autonomous Driving Model** Jul 2023 - Present
 - As a core developer, contributed to the development of a data-driven planning model, which has reached L3 production readiness.
 - Developed an adaptive keyframe-based data resampling approach for model training, resulting in enhanced road test performance.
 - Performed data analysis and cleaning, developing an adaptive approach to mitigate statistical biases in the training data, which substantially reduced model bias.

EDUCATION

Tsinghua University

Ph.D. in Computer Science

Beijing, China

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

B.S. in Physics

Beijing, China

Sep 2011 - Jul 2015

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

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

- **C/C++:** (8+ years); computer graphics, physics-based simulation, online/offline systems for autonomous driving.
- **Python:** (10+ years); scientific computing, data analysis, machine learning.
- **PyTorch & TensorFlow:** (7+ years); MLP, CNN, LSTM, Transformer; GAN, VAE, RL.