Tao Tang

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google scholar (citation 1006)

EDUCATION

Sun Yat-sen University *Sept 2021 - Jul.2026*
Ph.D., School of Intelligent Systems Engineering
Advisor: Prof. Xiaodan Liang, Email: liangxd9@mail.sysu.edu.cn

Dalian University of Technology *Sept 2017 - Jul 2021*
B.E., Network Engineering, School of Software

INTERN AND RESEARCH EXPERIENCE

Li Auto, Autonomous Driving Lab *Dec 2023 - Now*
Research Intern, working on world model for autonomous driving.

Alibaba Group, DAMO Academy, Autonomous Driving Lab *Mar 2022 - Dec 2023*
Research Intern, working on 3D robust object detection and sensor simulation.

Dark Matter AI, Auto-ML Lab *Mar 2021 - Aug 2021*
Research Intern, working on neural architecture search and self-supervised learning.

AWARDS AND SCHOLARSHIPS

First Class Scholarship, Sun Yat-sen University *2022 – 2025*
Outstanding Graduate Student, Liaoning Province *2021*
National Scholarship, National Encouragement Scholarship *2017 – 2020*
First Class Scholarship, Merit Student, Dalian University of Technology *2017 – 2020*
First Prize, the 26th College Student Mathematics Competition, Dalian *2017*

RESEARCH INTERESTS

My research focuses on learning 2D and 3D representations of objects and scenes towards improving the accuracy and robustness of perception tasks in complex environments. Currently, I focus on LLM and sensor simulation and data generation for autonomous driving and robotics.

PUBLICATIONS & PREPRINTS

1. Unified Multimodal Sensor Generation and **Understanding** for Autonomous Driving
   Tao Tang
   Under process.

2. *OmniGen: Unified Multimodal Sensor Generation for Autonomous Driving
   Tao Tang, Enhui Ma, Xia Zhou, Letian Wang, Tianyi Yan, Xueyang Zhang, Kun Zhan, Peng Jia, XianPeng Lang, Jia-Wang Bian, Kaicheng Yu, Xiaodan Liang
   Under review.

3. *RoboPearls: Editable Video Simulation for Robot Manipulation
   Tao Tang*, Likui Zhang*, Youpeng Wen, Kaidong Zhang, Jia Wang Bian, Xia Zhou, Tianyi Yan, Kun Zhan, Peng Jia, Hefeng Wu, Liang Lin, Xiaodan Liang
   Under review.

4. LiDAR-GS: Real-time LiDAR Re-Simulation using Gaussian Splatting
   Qifeng Chen, Sheng Yang, Sicong Du, **Tao Tang**, Peng Chen, Yuchi Huo
   Under review. paper

5. Unleashing Generalization of End-to-End Autonomous Driving with Controllable Long Video Generation
   Enhui Ma, Lijun Zhou, **Tao Tang**, Zhan Zhang, Dong Han, Junpeng Jiang, Kun Zhan, Peng Jia, Xianpeng Lang, Haiyang Sun, Di Lin, Kaicheng Yu
   Under review. paper

6. *UA-Track: Uncertainty-Aware End-to-End 3D Multi-Object Tracking
   Tao Tang*, Lijun Zhou*, Pengkun Hao, Zihang He, Kalok Ho, Shuo Gu, Zhihui Hao, Haiyang Sun, Kun Zhan, Peng Jia, Xianpeng Lang, Xiaodan Liang
   ***ICML** 2025.* paper

7. UniGS: Unified Language-Image-3D Pretraining with Gaussian Splatting
Haoyuan Li, Zhou Yanpeng, **Tang Tao**, Jifei Song, Yihan Zeng, Michael Kampffmeyer, Hang Xu, Xiaodan Liang
ICLR *2025*. paper

8. *BEV-TSR: Text-Scene Retrieval in BEV Space for Autonomous Driving
Tang Tao*, Dafeng Wei*, Zhengyu Jia*, Tian Gao*, Changwei Cai, Chengkai Hou, Peng Jia, Kun Zhan, Haiyang Sun, Jingchen Fan, Yixing Zhao, Fu Liu, Xiaodan Liang, Xianpeng Lang, Yang Wang
AAAI *2025*. paper

9. *AlignMiF: Geometry-Aligned Multimodal Implicit Field for LiDAR-Camera Joint Synthesis
Tang Tao, Guangrun Wang, Yixing Lao, Peng Chen, Jie Liu, Liang Lin, Kaicheng Yu, Xiaodan Liang
CVPR *2024 Highlight*. paper, code

10. *LiDAR-NeRF: Novel LiDAR View Synthesis via Neural Radiance Fields
Tang Tao, Longfei Gao, Guangrun Wang, Peng Chen, Dayang Hao, Xiaodan Liang, Mathieu Salzmann, Kaicheng Yu
ACM MM *2024 Oral*. paper, code

11. *Making large language models better planners with reasoning-decision alignment
Zhijian Huang*, **Tang Tao***, Shaoxiang Chen, Sihao Lin, Zequn Jie, Lin Ma, Guangrun Wang, Xiaodan Liang
ECCV *2024 Oral*. paper, code

12. LiT: Unifying LiDAR" Languages" with LiDAR Translator
Yixing Lao, **Tang Tao**, Xiaoyang Wu, Peng Chen, Kaicheng Yu, Hengshuang Zhao
NeurIPS *2024*. paper, code

13. Opensight: A simple open-vocabulary framework for lidar-based object detection
Hu Zhang, Jianhua Xu, **Tang Tao**, Haiyang Sun, Xin Yu, Zi Huang, Kaicheng Yu
ECCV *2024*. paper, code

14. MLP Can Be A Good Transformer Learner
Sihao Lin, Pumeng Lyu, Dongrui Liu, **Tang Tao**, Xiaodan Liang, Andy Song, Xiaojun Chang
CVPR *2024 Best paper candidate*. paper, code

15. *Benchmarking the Robustness of LiDAR-Camera Fusion for 3D Object Detection
Kaicheng Yu*, **Tang Tao***, Hongwei Xie, Zhiwei Lin, Tingting Liang, Bing Wang, Peng Chen, Dayang Hao, Yongtao Wang, Xiaodan Liang
CVPRW *2023*. *paper, code*

16. BEVHeight: A Robust Framework for Vision-based Roadside 3D Object Detection
Lei Yang, Kaicheng Yu, **Tao Tang**, Jun Li, Kun Yuan, Li Wang, Xinyu Zhang, Peng Chen.
CVPR *2023*. paper, code

17. BEVFusion: A Simple and Robust LiDAR-Camera Fusion Framework
Tingting Liang, Hongwei Xie, Kaicheng Yu, Zhongyu Xia, Zhiwei Lin, Yongtao Wang, **Tao Tang**, Bing Wang, Zhi Tang
NeurIPS *2022*. paper, code

18. BossNAS: Exploring Hybrid CNN-transformers with Block-wisely Self-supervised Neural Architecture Search
Changlin Li, **Tao Tang**, Guangrun Wang, Jiefeng Peng, Bing Wang, Xiaodan Liang, Xiaojun Chang
ICCV *2021*. paper, code

19. Bevheight++: Toward robust visual centric 3d object detection
Lei Yang, **Tao Tang**, Jun Li, Peng Chen, Kun Yuan, Li Wang, Yi Huang, Xinyu Zhang, Kaicheng Yu
TPAMI. paper, code

20. BossNAS Family: Block-wisely Self-supervised Neural Architecture Search
Changlin Li, Sihao Lin, **Tao Tang**, Guangrun Wang, Mingjie Li, Zhihui Li, Xiaojun Chang
TPAMI. paper, code

21. *AutoView: Learning Self-Regularized Adversarial Views for Self-Supervised Vision Transformers
Tao Tang, Changlin Li, Guangrun Wang, Kaicheng Yu, Xiaojun Chang, Xiaodan Liang.
Under review. paper, code