Yue Meng

mengyue@mit.edu · https://mengyuest.github.io

FIELD OF INTERESTS

Safety-assured autonomy; Machine learning; Efficient video understanding; 3D reconstruction

EDUCATION

Ph.D. in Aeronautics and Astronautics Sep. 2020 - Current
Massachusetts Institute of Technology, MA, USA

M.S. in Electrical and Computer Engineering Sep. 2017 - Mar. 2019
University of California San Diego, CA, USA

B.E. in Department of Automation Aug. 2013 - Jul. 2017
Tsinghua University, Beijing, China

PUBLICATIONS

Y. Meng, Z. Qiu, M. Waez and C. Fan, "Case Studies for Computing Density of Reachable States for Safe Autonomous Motion Planning", in *14th NASA Formal Methods Symposium (NFM)*, 2022 [PDF]

Y. Meng, D. Sun, Z. Qiu, M. Waez and C. Fan, "Learning Density Distribution of Reachable States for Autonomous Systems", in *5th Conference on Robot Learning (CoRL)*, 2021 [PDF]

Y. Meng, Z. Qin and C. Fan, "Reactive and Safe Road User Simulations using Neural Barrier Certificates", in *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, 2021 [PDF]

Y. Meng, R. Panda, C. Lin, P. Sattigeri, L. Karlinsky, K. Saenko, A. Oliva and R. Feris, "AdaFuse: Adaptive Temporal Fusion Network for Efficient Action Recognition," in *Int. Conf. on Learning Representations (ICLR)*, 2021 [PDF]

Y. Meng, C. Lin, R. Panda, P. Sattigeri, L. Karlinsky, K. Saenko, A. Oliva and R. Feris, "AR-Net: Adaptive Frame Resolution for Efficient Action Recognition," in *European Conf. on Computer Vision (ECCV)*, 2020 (acceptance rate 27.0%) [PDF]

C. Li, **Y. Meng**, S. Chan and Y. Chen, "Learning 3D-aware Egocentric Spatial-Temporal Interaction via Graph Convolutional Networks," in *IEEE Int. Conf. on Robotics and Automation (ICRA)*, 2020 [PDF]

Q. Feng, **Y. Meng**, M. Shan, and N. Atanasov, "Localization and Mapping using Instance-specific Mesh Models," in *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, 2019 [PDF]

Y. Meng, Y. Lu, A. Raj, S. Sunarjo, G. Bansal, R. Guo, T. Javidi, and D. Bharadia, "SIGNet: Semantic Instance Aided Unsupervised 3D Geometry Perception," in *IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2019 (acceptance rate 25.2%) [PDF]

Y. Meng, L. Li, F. Wang, K. Li, and Z. Li, "Analysis of Cooperative Driving Strategies for Nonsignalized Intersections," *IEEE Transactions on Vehicular Technology (TVT), 67 (4)*, 2900-2911 [PDF]

AWARDS AND HONORS

Study Scholarship of Tsinghua University, 2014, 2015

Sports Scholarship of Tsinghua University, 2014, 2015

TEACHING EXPERIENCE

Teaching Assistant, University of California, San Diego, CA, USA Jan. 2019 - Mar. 2019
Instructor: Behrouz Touri, Electrical and Computer Engineering
Course: Stochastic Processes in Dynamic Systems I

RESEARCH EXPERIENCE

Research Assistant, Massachusetts Institute of Technology, Cambridge, MA Sep. 2020 - Current
Advisor: Chuchu Fan, Department of Aeronautics and Astronautics
- Safe and decentralized multi-agent planning for autonomous driving via control barrier functions
- Learning-based reachability distribution estimation via solving Liouville PDE
- Control hybrid systems using differentiable RoA-based planning approach

Research Intern, Microsoft Research, WA, USA Jun. 2022 - Aug. 2022
Mentor: Sai H. Vemprala, Senior Researcher
- Learning implicit safety through multi-modal pretraining

AI Resident, IBM Thomas J. Watson Research Center, NY, USA Sep. 2019 - Aug. 2020
Mentor: Rogerio S. Feris, Research Manager
- Efficient video understanding and few-shot learning

Research Intern, Honda Research Institute, CA, USA Mar. 2019 - Jun. 2019
Mentor: Yi-Ting Chen, Research Scientist
- Proposed a bird's-eye view representation for driving scene understanding

Research Assistant, University of California San Diego, CA, USA Jan. 2018 - Mar. 2019
Advisor: Nikolay A. Atanasov, Electrical and Computer Engineering
- Developed semantic perception and tracking pipeline for 3D reconstruction

Research Assistant, University of California San Diego, CA, USA Sep. 2018 - Dec. 2018
Advisor: Dinesh Bharadia, Tara Javidi, Electrical and Computer Engineering
- Proposed semantic unsupervised learning framework for depth and flow estimation

Research Assistant, Tsinghua University, Beijing, China Sep. 2015 - Jun. 2017
Advisor: Li Li, Department of Automation
- Designed a traffic simulation platform and analyzed cooperative driving strategies at intersections

PROFESSIONAL EXPERIENCE

Software Engineering Intern, Google Geo, Mountain View, CA, USA Jun. 2019 - Sep. 2019
- Improved user-photo timestamp correction by using image content-based annotation

Software Engineering Intern, Google Ads, New York, NY, USA Jun. 2018 - Sep. 2018
- Migrated Ads prediction modules from Sibyl to Tensorflow platform

System Development Intern, TuSimple, Beijing, China Jul. 2017 - Sep. 2017
- Implemented Faster-RCNN for cameras on bus and optimized the pipeline by 40%

TECHNICAL SKILLS

Programming: Python, C++, Matlab, Julia, C#

Tools: Tensorflow, Pytorch, ROS, Git, Linux, Docker, Kubernetes, LaTeX

Languages: Proficient in English and Chinese