Yue Meng

mengyuethu@gmail.com · mengyuest.github.io

EDUCATION

Ph.D. in Aeronautics and Astronautics Sep. 2020 - Current
Massachusetts Institute of Technology, MA, USA **GPA: 5.00/5.00**

M.S. in Electrical and Computer Engineering Sep. 2017 - Mar. 2019
University of California San Diego, CA, USA **GPA: 3.97/4.00**

B.E. in Department of Automation Aug. 2013 - Jul. 2017
Tsinghua University, Beijing, China **GPA: 87/100, rank: top 30%**

FIELD OF INTERESTS

Safety-assured autonomy; efficient video understanding; 3D reconstruction; visual odometry

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 reachabililty distribution estimation via solving Liouville PDE

AI Resident, IBM Thomas J. Watson Research Center, NY, USA Sep. 2019 - Aug. 2020
Advisor: Rogerio S. Feris, Research Manager
- Efficient video understanding and few-shot learning
- Published the work to **ECCV 2020** and **ICLR 2021** as first author

Research Intern, Honda Research Institute, CA, USA Mar. 2019 - Jun. 2019
Advisor: Yi-Ting Chen, Research Scientist
- Proposed a bird's-eye view representation for driving scene understanding
- Improved classification on Honda Driving Dataset and published the work to **ICRA 2020**

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
- Conducted research in object level 3D compression for mapping
- Presented on **RSS 2018** workshop and published the work to **IROS 2019**

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
- Improved depth prediction by 30% over S.O.T.A. and published in **CVPR 2019** as first author

Research Assistant, Tsinghua University, Beijing, China Sep. 2015 - Jun. 2017
Advisor: Li Li, Department of Automation
- Designed a simulation platform for micro-scope transportation at non-signal intersections
- Analyzed cooperative driving strategies and published in **IEEE TVT 2018** as first author

PUBLICATIONS

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

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

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%)

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

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

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%)

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

PREPRINTS

Y. Meng, D. Sun, Z. Qiu, M. Waez and C. Fan, "Learning Density Distribution of Reachable States for Autonomous Systems"

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

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

GRADUATE COURSES (ALL)

MIT		
6.867	Machine Learning	**A+**
16.413	Principles of Autonomy and Decision Making	**A**
6.832	Underactuated Robotics	**A**
16.S398	Advanced Subject in Information and Control	**A**
UCSD		
ECE272A	Stochastic Processes in Dynamic Systems I	**A+, 1/78**
ECE269	Linear Algebra and Applications	**A+, 1/191**
ECE276A	Sensing and Estimation in Robotics	**A, 3/113**
ECE273	Convex Optimization and Applications	**A, 4/107**
ECE271A	Statistical Learning I	**A+, 5/202**
CSE252A	Computer Vision I	**A+, 5/165**
CSE253	Neural Networks for Pattern Recognition	**A+, 6/212**
CSE254	Intrinsic Dimension and Dimension Reduction	**A, */18**
MATH245B	Convex Analysis and Optimization II	**A, */25**
ECE271C	Deep Learning and Applications	**A, 13/33**
MAE281A	Nonlinear Systems	**A-, 15/39**

AWARDS AND HONORS

Study Scholarship of Tsinghua University, 2014, 2015

Sports Scholarship of Tsinghua University, 2014, 2015

1st awards in male 1500m, 4×800m, 4×400m races in Tsinghua Athletic Meeting

Tsinghua high school male 3000m race **record holder (2012-Present)**