Last Updated: December 18, 2017

2017 TRI Joint University Workshop

December 19-20, 2017 – Massachusetts Institute of Technology, Cambridge, MA

Day 1: Tuesday, December 19, 2017

Time	Event	Venue
3:00pm	Lab Visits and Group Meetings (see Appendix A)	CSAIL, 32 Vassar Street, Cambridge, MA
5:30pm	Welcome Reception	Samberg Conference Center, Salon T & West 7th Floor, Chang Building (E52), MIT, 50 Memorial Drive, Cambridge, MA 02139

Day 2: Wednesday, December 20, 2017

Time	Event	Speaker(s)	Venue
8:30am	Registration and Breakfast		Salon I & M 7th floor Samberg Conf. Ctr.
9:00am	Welcome	TRI Leadership Daniela Rus, MIT	
	Review 1: ROBOTICS		Salon I & M
9:15am	Overview and Discussion	Oussama Khatib, Stanford Nicholas Roy, MIT	
9:30am	Closing the Visuomotor Loop with Deep Reinforcement Learning	Animesh Garg, Stanford	
9:45am	Analysis by Synthesis Revisited: Visual Scene Understanding by Integrating Probabilistic Programs and Deep Learning	Josh Tenenbaum, MIT	
10:00am	Task-Oriented Active Perception and Motion Planning for Manipulating Piles of Stuff	Brent Griffin, U-M	
10:15am	Q&A Panel Discussion	Andrés Valenzuela, TRI Animesh Garg, Stanford Josh Tenenbaum, MIT Brent Griffin, U-M	
10:35am	Break		Salon T
	Review 2: HUMAN BEHAVIOR/INTERACTIONS/MODEL		Salon I & M
10:55am	Overview and Discussion	Silvio Savarese, Stanford Satinder Baveja, U-M	

11:10am	Dynamic Choice Models of Human Decision Making	Stefano Ermon, Stanford	
11:25am	Predicting a Driver's State-of-Mind	Antonio Torralba, MIT	
11:40am	Multimodal Sensing of Human Behavior	Emily Mower Provost, U-M	
11:55am	Digest Video Technology Capturing the Growing Behavior of Children in Nursery School	Nobuki Hayashi, Toyota Frontier Research Division	
12:10pm	Q&A Panel Discussion	Kate Tsui, TRI Nobuki Hayashi, Toyota Stefano Ermon, Stanford Antonio Torralba, MIT Emily Mower Provost, U-M	
12:30pm	Lunch		Salon T
	Review 3: AUTONOMY		Salon I & M
2:00pm	Overview and Discussion	Tulga Ersal, U-M Sertac Karaman, MIT	
2:15pm	Safe Feedback Interactions in Human-Autonomous Vehicle Systems	Mykel Kochenderfer, Stanford	
2:30pm	Socially-Compliant Behavior for Autonomous Driving	Alyssa Pierson & Wilko Schwarting, MIT	
2:45pm	Development of a Primary Other Test Vehicle for the Testing and Evaluation of High-Level Automated Vehicles	Ding Zhao, U-M	
3:00pm	Q&A Panel Discussion	Luke Fletcher, TRI Mykel Kochenderfer, Stanford Alyssa Pierson & Wilko Schwarting, MIT Ding Zhao, U-M	
3:20pm	TRI Wrap-up Session	James Kuffner, TRI	Salon I & M
3:40pm	Break		
	POSTERS		
3:45pm	Poster Spotlight Presentations (see Appendix B)		Salon I & M
4:30pm	Poster Viewing and Reception		Dining Room 3-4; 5-6 6th floor Samberg Conf. Ctr.
6:00pm	Adjourn		

Appendix A: DEMOS

3:00pm - 5:20pm, December-19-2017

All demos are in Ray and Maria Stata Center Building 32 (Click for map)

Self-Driving Car Demo
Thomas Balch
Car Lab, Garage (Lower Floor), Building 32 (Click for map)

Vehicle Maneuver Data Collection
Xin "Cyrus" Huang, Brian Williams
MERS Lab, Room 32-277 (Click for map)

Fast Visualization of the Driver's Peripheral Vision
Ruth Rosenholtz, Lex Fridman
Open area outside Room 32- D424 (Click for map)

Chekov: Fast, Smooth Motion Planning from Sparse, Offline Solution Caches and Trajectory Optimization
Shawn Schaffert, Brian Williams
MERS lab: Room 32-277 (Click for map)

Reasonableness Monitors
Leilani Hendrina Gilpin
Room 32-G506 (Click for map)

Appendix B: POSTER SPOTLIGHT PPRESENTATIONS

3:45pm–4:30pm, December-20-2017

University of Michigan

Legged Robot State-Estimation Through Combined Forward Kinematic and Pre-integrated Contact Factors
Ross Hartley, Josh Mangelson, Lu Gan, Maani Ghaffari Jadidi, Jeffrey M. Walls, Ryan M. Eustice, Jessy W. Grizzle

A Torsion Predictive Model for Fiber-Reinforced Soft Robot Actuators
Audrey Sedal, C. David Remy

Advances in Non-Asymptotic Estimation and Polytopic Barrier Functions for Vehicle Safety
Petter Nilsson, *Kwesi Rutledge*, Yuhao Ding, Sze Zheng Yong, Necmiye Ozay

PEDESTRIANS AND NON AV DRIVERS' TRUST IN AUTONOMOUS VEHICLES
Suresh Kumaar Jayaraman, Chandler Creech, *Lionel Robert*, Dawn Tilbury, Xi Jessie Yang, Anuj K Pradhan

Multi -Vehicle Interaction and Control
Lixing Huang, Dongkun Han, Dimitra Panagou

Stanford

Multimodal Probabilistic Model-Based Planning for Human-Robot Interaction
Edward Schmerling, *Karen Leung*, Wolf Vollprecht, Marco Pavone

MacroBase: A Search Engine For Fast Data
Firas Abuzaid, Peter Bailis, Jialin Ding, Edward Gan, Kexin Rong, Sahaana Suri

Safe, Distributed Lane Change Maneuvers for Multiple Autonomous Vehicles
Mingyu Wang, Zijian Wang, Shreyasha Paudel, Mac Schwager

Certiable Distributional Robustness with Principled Adversarial Training
Aman Sinha, Hongseok Namkoong, & John Duchi, Stanford University

A Game Theoretic Approach to Autonomous Racing
R. Spica, D. Falanga , E. Cristofalo , E. Montijano, D. Scaramuzza, and M. Schwager

MIT

Crossing the Vision-Language Boundary
David Harwath, Galen Chuang, Antonio Torralba, and James Glass

Rapid Perception and Prediction of Driving Environments
Benjamin Wolfe, Lex Fridman, Anna Kosovicheva, Bryan Reimer, Ruth Rosenholtz

Spatial Uncertainty Sampling for End-to-End Control
Alexander Amini, Ava Soleimany, Sertac Karaman, Daniela Rus

Community Based Anomaly Detection
Leilani H Gilpin, Ben Z Yuan, Gerald Jay Sussman

Geordi - A Driver's Assistant for Risk-bounded Maneuvering
Ashkan Jasour, Xin Huang, Matthew Deyo, Andreas Hofmann, Brian Williams

MarrNet: 3D Shape Reconstruction via 2.5D Sketches
Jiajun Wu, Yifan Wang, Tianfan Xue, Xingyuan Sun, William T. Freeman, Joshua B. Tenenbaum