RSS Main Conference Schedule

Tuesday, June 28: Main Conference, Day 1

Youtube broadcast link: https://youtu.be/qI0zvRp-UnE

9:00-9:30am *Arledge Aud.* *Lerner Hall*	**Opening remarks** Kris Hauser (Program Chair), Matei Ciocarlie (Local Arrangements Chair)
9:30-10:00am	**Paper Session 1: Long talks** Chair: Christoffer Heckmann (University of Colorado, Boulder)
9:30-9:45am Poster 1	*ACID: Action-Conditional Implicit Visual Dynamics for Deformable Object Manipulation* Bokui Shen (Stanford University), Zhenyu Jiang (University of Texas at Austin), Christopher Choy (NVidia), Leonidas Guibas (Stanford University), Silvio Savarese (Stanford University), Anima Anandkumar (NVIDIA/Caltech), Yuke Zhu (University of Texas, Austin)
9:45-10:00am Poster 2	*Resilient Multi-Sensor Exploration of Multifarious Environments with a Team of Aerial Robots* Graeme Best (University of Technology Sydney), Rohit Garg (CMU), John Keller (CMU), Geoff Hollinger (Oregon State University), Sebastian Scherer (CMU)
10:00-10:30am *N. Lobby*	**Coffee break**
10:30-11:30am *Arledge*	**Paper Session 2: Short talks** Chair: David Held (Carnegie Mellon University)
10:30-10:35am Poster 3	*Equivariant Transporter Network* Haojie Huang, Dian Wang, Robin Walters, Robert Platt (Northeastern University)
10:35-10:40am Poster 4	*RoboCraft: Learning to See, Simulate, and Shape Elasto-Plastic Objects with Graph Networks* Haochen Shi (Stanford University), Huazhe Xu (Stanford University), Zhiao Huang (University of California San Diego), Yunzhu Li (MIT), Jiajun Wu (Stanford University)
10:40-10:45am Poster 5	*Play it by Ear: Learning Skills amidst Occlusion through Audio-Visual Imitation Learning* Maximilian Du, Olivia Y Lee, Suraj Nair, Chelsea Finn (Stanford University)
10:45-10:50am Poster 6	*The Surprising Effectiveness of Representation Learning for Visual Imitation* Jyothish Pari, Nur Muhammad (Mahi) Shafiullah, Sridhar Pandian Arunachalam, Lerrel Pinto (NYU)
10:50-10:55am Poster 7	*Mesh-based Dynamics with Occlusion Reasoning for Cloth Manipulation* Zixuan Huang, Xingyu Lin, David Held (CMU)
10:55-11:00am	*Q&A*

| 11:00-11:05am
Poster 8	*A Learning-based Iterative Control Framework for Controlling a Robot Arm with Pneumatic Artificial Muscles* Hao Ma, Dieter Büchler, Bernhard Schölkopf, Michael Muehlebach (Max Planck Institute for Intelligent Systems)
11:05-11:10am
Poster 9	*iSDF: Real-Time Neural Signed Distance Fields for Robot Perception* Joseph Ortiz (Imperial College London), Alexander Clegg (Facebook AI Research), Jing Dong (Facebook), Edgar A Sucar (Imperial College London), David Novotny (Facebook AI Research), Michael Zollhöfer (Facebook Reality Labs), Mustafa Mukadam (Facebook AI Research)
11:10-11:15am
Poster 10	*POCD: Probabilistic Object-Level Change Detection and Volumetric Mapping in Semi-Static Scenes* Jingxing Qian (University of Toronto), Veronica Chatrath (University of Toronto), Jun Yang (University of Toronto), James Servos (Clearpath Robotics), Angela Schoellig (University of Toronto), Steven L Waslander (University of Toronto)
11:15-11:20am
Poster 11	*DICP: Doppler Iterative Closest Point Algorithm* Bruno Hexsel, Heethesh Vhavle, Yi Chen (Aeva Inc)
11:20-11:30am	*Q&A*

11:30-12:30pm Keynote: An AI-First Approach to Building the Next Generation of Self-Driving Technology
Raquel Urtasun (University of Toronto, Waabi.ai)
Chair: Kris Hauser

12:30-2:00pm Lunch

2:00-3:00pm Paper Session 3: Long talks
Chair: Dmitry Berenson (University of Michigan)

| 2:00-2:15pm
Poster 12	*Iterative Residual Policy for Goal-Conditioned Dynamic Manipulation of Deformable Objects* Cheng Chi (Columbia University), Benjamin CM Burchfiel (TRI), Eric Cousineau (TRI), Siyuan Feng (TRI), Shuran Song (Columbia University)
2:15-2:30pm
Poster 13	*FlowBot3D: Learning 3D Articulation Flow to Manipulate Articulated Objects* Benjamin Eisner (CMU), Harry Zhang (CMU), David Held (CMU)
2:30-2:45pm
Poster 14	*ViKiNG: Vision-Based Kilometer-Scale Navigation with Geographic Hints* Dhruv Shah, Sergey Levine (UC Berkeley)
2:45-3:00pm
Poster 15	*DextAIRity: Deformable Manipulation Can be a Breeze* Zhenjia Xu (Columbia University), Cheng Chi (Columbia University), Benjamin CM Burchfiel (TRI), Eric Cousineau (TRI), Siyuan Feng (TRI), Shuran Song (Columbia University)

3:00-3:30pm Early Career Spotlight Talk: Henny Admoni
Five Traps for Robots in Human Environments....And How to Avoid Them
Henny Admoni, CMU
Chair: Dylan Shell

3:30-4:30pm Paper Session 4: Short talks
Chair: Anirudah Majumdar (Princeton University)

| 3:30-3:35pm
Poster 16	*MIRROR: Differentiable Deep Social Projection for Assistive Human-Robot Communication*

Kaiqi Chen, Jeffrey Fong, Harold Soh (NUS)

3:35-3:40pm Poster 17	*Robotic Telekinesis: Learning a Robotic Hand Imitator by Watching Humans on YouTube* Aravind Sivakumar, Kenneth Shaw, Deepak Pathak (CMU)
3:40-3:45pm Poster 18	*Underwater Robot-To-Human Communication Via Motion: Implementation and Full-Loop Human Interface Evaluation* Michael S Fulton, Muntaqim Mehtaz, Owen Queeglay, Junaed Sattar (University of Minnesota)
3:45-3:50pm Poster 19	*Gaze Complements Control Input for Goal Prediction During Assisted Teleoperation* Reuben M Aronson, Henny Admoni (CMU)
3:50-3:55pm Poster 20	*Negative Result for Learning from Demonstration: Challenges for End-Users Teaching Robots with Task And Motion Planning Abstractions* Nakul Gopalan, Nina M Moorman, Manisha Natarajan, Matthew Gombolay (Georgia Tech)
3:55-4:00pm	*Q&A*
4:00-4:05pm Poster 21	*Human Motion Control of Quadrupedal Robots using Deep Reinforcement Learning* Sunwoo Kim (Seoul National University), Maks Sorokin (Georgia Tech), Jehee Lee (Seoul National University), Sehoon Ha (Georgia Tech)
4:05-4:10pm Poster 22	*Rapid Locomotion via Reinforcement Learning* Gabriel B Margolis (MIT), Ge Yang (University of Chicago), Kartik Paigwar (ASU), Tao Chen (MIT), Pulkit Agrawal (MIT)
4:10-4:15pm Poster 23	*Human-to-Robot Imitation in the Wild* Shikhar Bahl (CMU), Abhinav Gupta (CMU/FAIR), Deepak Pathak (CMU)
4:15-4:20pm Poster 24	*Variational Inference MPC using Normalizing Flows and Out-of-Distribution Projection* Thomas J Power, Dmitry Berenson (University of Michigan)
4:20-4:30am	*Q&A*
4:30-6:00pm *Arledge*	**Poster session** Coffee served in North Lobby
6:00-7:30pm *Arledge*	**Welcome reception** *Drinks and hors d'oeuvres will be served*

Wednesday, June 29: Main Conference, Day 2

Youtube broadcast link: https://youtu.be/A6rRCVtB2sM

9:00-10:00am *Arledge Aud.* *Lerner Hall*	**Paper Session 5: Hybrid short / long talks** Chair: Kostas Bekris (Rutgers University)
9:00-9:05am Virtual	*Embodied Multi-Agent Task Planning from Ambiguous Instruction* Xinzhu Liu, Xinghang Li, Di Guo, Sinan Tan, Huaping Liu, Sun Fuchun (Tsinghua University)
9:05-9:10am Virtual	*Data Augmentation for Manipulation* Peter Mitrano, Dmitry Berenson (University of Michigan)
9:10-9:15am Virtual	*Bridging Model-based Safety and Model-free Reinforcement Learning through System Identification of Low Dimensional Linear Models* Zhongyu Li, Jun Zeng, Akshay Thirugnanam, Koushil Sreenath (UC Berkeley)
9:15-9:20am Poster 1	*A Local Optimization Framework for Multi-Objective Ergodic Search* Zhongqiang Ren (Carnegie Mellon University), Akshaya Kesarimangalam Srinivasan (Carnegie Mellon University), Howard Coffin (Carnegie Mellon University), Ian Abraham (Yale University), Howie Choset (Carnegie Mellon University)
9:20-9:25am Poster 2	*Aerial Layouting: Design and Control of a Compliant and Actuated End-Effector for Precise In-flight Marking on Ceilings* Christian Lanegger, Marco Tognon, Lionel Ott (ETH Zurich)
9:25-9:30am	*Q&A*
9:30-9:45am Poster 3	*Multi-Robot Adversarial Resilience using Control Barrier Functions* Matthew Cavorsi (Harvard University), Beatrice Capelli (University of Modena and Reggio Emilia), Lorenzo Sabattini (University of Modena and Reggio Emilia), Stephanie Gil (Harvard University)
9:45-10:00am Poster 4	*Autonomously Untangling Long Cables* Kaushik Shivakumar, Vainavi Viswanath, Justin Kerr, Brijen Thananjeyan, Ellen Novoseller, Jeffrey Ichnowski, Ken Goldberg, Joseph Gonzalez, Michael Laskey, Alejandro Escontrela (UC Berkeley)
10:00-10:30am *N. Lobby*	**Coffee break**
10:30-11:30am *Arledge*	**Paper Session 6: Short talks** Chair: Russ Tedrake (MIT, Toyota Research Institute)
10:30-10:35am Poster 5	*Proxima: An Approach for Time or Accuracy Budgeted Collision Proximity Queries* Daniel Rakita, Bilge Mutlu, Michael Gleicher (University of Wisconsin-Madison)
10:35-10:40am Poster 6	*PROX-QP: Yet another Quadratic Programming Solver for Robotics and Beyond* Antoine Bambade (INRIA), Sarah El Kazdadi (INRIA), Adrien B Taylor (INRIA/ENS), Justin Carpentier (INRIA)
10:40-10:45am Poster 7	*SymForce: Symbolic Computation and Code Generation for Robotics* Hayk Martiros, Aaron Miller (Skydio, Inc.)

10:45-10:50am Poster 8	*Failure Prediction with Statistical Guarantees for Vision-Based Robot Control* Alec Farid, David Snyder, Allen Z. Ren, Anirudha Majumdar (Princeton University)
10:50-10:55am Poster 9	*Factory: Fast Contact for Robotic Assembly* Yashraj S Narang, Kier Storey, Iretiayo A Akinola, Miles Macklin, Philipp Reist, Lukasz Wawrzyniak, Yunrong Guo, Adam Moravanszky, Gavriel State, Michelle Lu, Ankur Handa, Dieter Fox (NVIDIA)
10:55-11:00am	*Q&A*
11:00-11:05am Poster 10	*Collision Detection Accelerated: An Optimization Perspective* Louis Montaut (INRIA/CIIRC), Quentin Le Lidec (INRIA), Vladimír Petrík (Czech Technical University), Josef Sivic (Czech Technical University), Justin Carpentier (INRIA)
11:05-11:10am Poster 11	*Fundamental Performance Limits for Sensor-Based Robot Control and Policy Learning* Anirudha Majumdar, Vincent Pacelli (Princeton University)
11:10-11:15am Poster 12	*Certifiable Robot Design Optimization using Differentiable Programming* Charles B Dawson, Chuchu Fan (MIT)
11:15-11:20am Poster 13	*Collocation Methods for Second Order Systems* Siro Moreno (Consejo Superior de Investigaciones Científicas), Lluís Ros (Institut de Robòtica i Informàtica Industrial, CSIC-UPC), Enric Celaya (Consejo Superior de Investigaciones Científicas)
11:20-11:30am	*Q&A*
11:30-12:30pm	**Keynote: Wireless Skin-Conformal Devices for Health Monitoring and Haptic Interactions** John Rogers (Northwestern University) Chair: Kris Hauser
12:30-2:00pm	**Lunch**
2:00-3:00pm	**Paper Session 7: Long talks** Chair: Henny Admoni (CMU)
2:00-2:15pm Poster 14	*You Only Demonstrate Once: Category-Level Manipulation from Single Visual Demonstration* Bowen Wen (Rutgers University), Wenzhao Lian (Intrinsic), Kostas Bekris (Rutgers University), Stefan Schaal (University of S. California)
2:15-2:30pm Poster 15	*DiPCAN: Distilling Privileged Information for Crowd-Aware Navigation* Gianluca Monaci, Michel Aractingi, Tomi Silander (NAVER LABS Europe)
2:30-2:45pm Poster 16	*Parameterized Differential Dynamic Programming* Alex Oshin (Georgia Tech), Matthew D Houghton (NASA), Michael Acheson (NASA), Irene Gregory (NASA), Evangelos Theodorou (Georgia Tech)
2:45-3:00pm Poster 17	*AK: Attentive Kernel for Information Gathering* Weizhe Chen, Roni Khardon, Lantao Liu (Indiana University, Bloomington)
3:00-3:30pm	**Early Career Spotlight Talk: Jens Kober** Teaching Robots Through Interactions Jens Kober, TU Delft Chair: Dylan Shell

3:30-4:00pm	**Paper Session 8: Short talks** Chair: Abdeslam Boularias (Rutgers University)
3:30-3:35pm Poster 18	*SVAM: Saliency-guided Visual Attention Modeling by Autonomous Underwater Robot* Md Jahidul Islam (University of Florida), Ruobing Wang (University of Minnesota), Junaed Sattar (University of Minnesota)
3:35-3:40pm Poster 19	*TNS: Terrain Traversability Mapping and Navigation System for Autonomous Excavators* Tianrui Guan (University of Maryland, College Park), Zhenpeng He (Baidu Research Institute), Ruitao Song (Baidu Research Institute), Dinesh Manocha (University of Maryland at College Park), Liangjun Zhang (Baidu Research Institute)
3:40-3:45pm Poster 20	*Hydra: A Real-time Spatial Perception System for 3D Scene Graph Construction and Optimization* Nathan Hughes, Yun Chang, Luca Carlone (MIT)
3:45-3:50pm Poster 21	*FaDIV-Syn: Fast Depth-Independent View Synthesis using Soft Masks and Implicit Blending* Andre Rochow (University of Bonn), Max Schwarz (University of Bonn), Michael Weinmann (TU Delft), Sven Prof. Behnke (University of Bonn)
3:50-3:55pm Poster 22	*CALI: Coarse-to-Fine ALIgnments Based Unsupervised Domain Adaptation of Traversability Prediction for Deployable Autonomous Navigation* Zheng Chen, Durgakant Pushp, Lantao Liu (Indiana University, Bloomington)
3:55-4:00pm	*Q&A*
4:00-5:30pm *Arledge*	**Poster session** Coffee served in North Lobby
5:30-5:35pm	**Banquet travel instructions** Matei Ciocarlie **Travel to banquet** We recommend taking the 1 train (a 35-40 minute trip) or an Uber/Yellow Cab (20-30 minutes depending on traffic).
7:00-10:00pm *Pier 40*	**Banquet** Boarding starts at 6:30pm, ship leaves dock at 7:00pm

Thursday, June 30: Main Conference, Day 3

Youtube broadcast link: https://youtu.be/kA2BeKyqkGs

9:00-10:00am *Arledge Aud.* *Lerner Hall*	**Paper Session 9: Hybrid short talks** Chair: Elaine Short (Tufts University)
9:00-9:05am Virtual	*KernelGPA: A Deformable SLAM Back-end* Fang Bai, Adrien Bartoli (Université Clermont Auvergne)
9:05-9:10am Virtual	*CURL: Continuous, Ultra-compact Representation for LiDAR* Kaicheng Zhang, Ziyang Hong, Shida Xu, Sen Wang (Heriot-Watt University)
9:10-9:15am Virtual	*SEER: Unsupervised and sample-efficient environment specialization of image descriptors* Peer Neubert, Stefan Schubert (TU Chemnitz)
9:15-9:20am Poster 1	*Sub-1.5 Time-Optimal Multi-Robot Path Planning on Grids in Polynomial Time* Teng Guo, Jingjin Yu (Rutgers University)
9:20-9:30am	*Q&A*
9:30-9:35am Poster 2	*Occupancy-SLAM: Simultaneously Optimizing Robot Poses and Continuous Occupancy Map* Liang Zhao, Yingyu Wang, Shoudong Huang (Robotics Institute, University of Technology Sydney)
9:35-9:40am Poster 3	*Conflict-Based Steiner Search for Multi-Agent Combinatorial Path Finding* Zhongqiang Ren (CMU), Sivakumar Rathinam (Texas A&M University), Howie Choset (CMU)
9:40-9:45am Poster 4	*Traversing Supervisor Problem: An Approximately Optimal Approach to Multi-Robot Assistance* Tianchen Ji, Roy Dong, Katherine Driggs-Campbell (University of Illinois at Urbana-Champaign)
9:45-9:50am Poster 5	*Cooperative Multi-Agent Trajectory Generation with Modular Bayesian Optimization* Gilhyun Ryou, Ezra Tal, Sertac Karaman (Massachusetts Institute of Technology)
9:50-10:00am	*Q&A*
10:00-10:30am *N. Lobby*	**Coffee break**
10:30-11:30am *Arledge*	**Paper Session 10: Short talks** Chair: Andy Zheng (Google)
10:30-10:35am Poster 6	*Soft Robots Learn to Crawl: Jointly Optimizing Design and Control with Sim-to-Real Transfer* Charles Schaff (Toyota Technological Institute at Chicago), Audrey Sedal (McGill University), Matthew Walter (Toyota Technological Institute at Chicago)
10:35-10:40am Poster 7	*End-to-End Learning of Hybrid Inverse Dynamics Models for Precise and Compliant Impedance Control* Moritz Reuss (KIT), Niels van Duijkeren (Bosch Corporate Research), Robert Krug (Bosch Corporate Research), Philipp Becker (KIT), Vaisakh Shaj (KIT), Gerhard Neumann (KIT)

10:40-10:45am Poster 8	*FuseBot: RF-Visual Mechanical Search* Tara Boroushaki , Laura Dodds, Nazish Naeem, Fadel Adib (MIT)
10:45-10:50am Poster 9	*Learning Interpretable, High-Performing Policies for Autonomous Driving* Rohan R Paleja (Georgia Tech), Yaru Niu (Georgia Tech), Andrew Silva (Georgia Tech), Chace O Ritchie (UKY), Sugju Choi (Georgia Tech), Matthew Gombolay (Georgia Tech)
10:50-10:55am Poster 10	*Learning Forward Dynamics Model and Informed Trajectory Sampler for Safe Quadruped Navigation* Yunho Kim, Chanyoung Kim, Jemin Hwangbo (KAIST)
10:55-11:00am	*Q&A*
11:00-11:05am Poster 11	*Meta Value Learning for Fast Policy-Centric Optimal Motion Planning* Siyuan Xu, Minghui Zhu (The Pennsylvania State University)
11:05-11:10am Poster 12	*Bridge Data: Boosting Generalization of Robotic Skills with Cross-Domain Datasets* Frederik D Ebert (UC Berkeley), Yanlai Yang (UC Berkeley), Karl Schmeckpeper (University of Pennsylvania), Bernadette K Bucher (University of Pennsylvania), Georgios Georgakis (University of Pennsylvania), Kostas Daniilidis (University of Pennsylvania), Chelsea Finn (Stanford), Sergey Levine (UC Berkeley)
11:10-11:15am Poster 13	*Invariance Through Latent Alignment* Takuma Yoneda (Toyota Technological Institute at Chicago), Ge Yang (University of Chicago), Matthew Walter (Toyota Technological Institute at Chicago), Bradly C Stadie (Vector Institute)
11:15-11:20am Poster 14	*Correcting Robot Plans with Natural Language Feedback* Pratyusha Sharma (MIT), Balakumar Sundaralingam (NVIDIA), Valts Blukis (NVIDIA), Chris Paxton (NVIDIA), Tucker Hermans (University of Utah), Antonio Torralba (MIT), Jacob Andreas (MIT), Dieter Fox (NVIDIA)
11:20-11:30pm	*Q&A*
11:30-12:30pm	**Test of Time Award and Panel** Chair: Gaurav Sukhatme (University of Southern California)
12:30-2:00pm	**Lunch** **Tour Columbia Robotics Labs** (limited to X attendees, signup sheet at registration desk)
2:00-3:00pm	**Paper Session 11: Short talks** Chair: Jens Kober (TU Delft)
2:00-2:05pm Poster 15	*Action Conditioned Tactile Prediction: case study on slip prediction* Willow Mandil, Amir Ghalamzan, Kiyanoush Nazari (Univercity of Lincoln)
2:05-2:10pm Poster 16	*Sample Efficient Grasp Learning Using Equivariant Models* Xupeng Zhu, Dian Wang, Ondrej Biza, Guanang Su, Robin Walters, Robert Platt (Northeastern University)
2:10-2:15pm Poster 17	*Understanding Dynamic Tactile Sensing for Liquid Property Estimation* Hung-Jui Huang, Xiaofeng Guo, Wenzhen Yuan (CMU)
2:15-2:20pm Poster 18	*Adaptive Manipulation of Conductive, Nonmagnetic Objects via a Continuous Model of Magnetically Induced Force and Torque*

Griffin Tabor (University of Utah), Lan Pham (Relativity Space), Jake Abbott (University of Utah), Tucker Hermans (University of Utah)

2:20-2:30pm	*Q&A*

2:30-2:35pm Poster 19	*Distributed Optimisation and Deconstruction of Bridges by Self-Assembling Robots* Edward Bray, Roderich Gross (The University of Sheffield)

2:35-2:40pm Poster 20	*Learning Mixed Strategies in Trajectory Games* Lasse Peters (Delft University of Technology), David Fridovich-Keil (Stanford), Laura Ferranti (Delft University of Technology), Cyrill Stachniss (University of Bonn), Javier Alonso-Mora (Delft University of Technology), Forrest J Laine (UC Berkeley)

2:40-2:45pm Poster 21	*Decentralized Safe Multi-Agent Stochastic Optimal Control using Deep FBSDEs and ADMM* Marcus A Pereira, Augustinos D Saravanos, Oswin So, Evangelos Theodorou (Georgia Tech)

2:45-2:50pm Poster 22	*PropEM-L: Radio Propagation Environment Modeling and Learning for Communication-Aware Multi-Robot Exploration* Lillian Clark (University of Southern California), Jeffrey Edlund (JPL, CalTech), Tiago Stegun Vaquero (JPL, CalTech), Marc Sanchez Net (JPL, CalTech), Ali Agha (JPL)

2:50-3:00pm	*Q&A*

3:00-4:30pm *Arledge*	**Poster session** Coffee served in North Lobby

4:30-5:00pm *Arledge*	**Award ceremony** Robert Platt (Awards Committee Chair)

5:00-6:00pm	**RSS Town Hall** Kris Hauser (Program Chair), Dylan Shell (General Chair)

6:00-6:10pm	**Close of Main Conference**