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	*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	*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	*Equivariant Transporter Network* Haojie Huang, Dian Wang, Robin Walters, Robert Platt (Northeastern University)
10:35-10:40am	*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	*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	*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	*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	*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 *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 *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 *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: Title TBD**
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 *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 *FlowBot3D: Learning 3D Articulation Flow to Manipulate Articulated Objects*
Harry Zhang (CMU), David Held (CMU), Benjamin Eisner (CMU)

2:30-2:45pm *ViKiNG: Vision-Based Kilometer-Scale Navigation with Geographic Hints*
Dhruv Shah, Sergey Levine (UC Berkeley)

2:45-3:00pm *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, CMU
Chair: Dylan Shell

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

3:30-3:35pm *MIRROR: Differentiable Deep Social Projection for Assistive Human-Robot Communication*
Kaiqi Chen, Jeffrey Fong, Harold Soh (NUS)

3:35-3:40pm *Robotic Telekinesis: Learning a Robotic Hand Imitator by Watching Humans on YouTube*
Aravind Sivakumar, Kenneth Shaw, Deepak Pathak (CMU)

3:40-3:45pm *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	*Gaze Complements Control Input for Goal Prediction During Assisted Teleoperation* Reuben M Aronson, Henny Admoni (CMU)
3:50-3:55pm	*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	*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	*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	*Human-to-Robot Imitation in the Wild* Shikhar Bahl (CMU), Abhinav Gupta (CMU/FAIR), Deepak Pathak (CMU)
4:15-4:20pm	*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 *Low Rotunda*	**Welcome reception** *Drinks and hors d'oeuvres will be served*

Wednesday, June 27: 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	*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	*Data Augmentation for Manipulation* Peter Mitrano, Dmitry Berenson (University of Michigan)
9:10-9:15am	*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	*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	*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	*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	*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: TBD
10:30-10:35am	*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	*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	*SymForce: Symbolic Computation and Code Generation for Robotics* Hayk Martiros, Aaron Miller (Skydio, Inc.)
10:45-10:50am	*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 *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 *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 *Fundamental Performance Limits for Sensor-Based Robot Control and Policy Learning*
Anirudha Majumdar, Vincent Pacelli (Princeton University)

11:10-11:15am *Certifiable Robot Design Optimization using Differentiable Programming*
Charles B Dawson, Chuchu Fan (MIT)

11:15-11:20am *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 *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 *DiPCAN: Distilling Privileged Information for Crowd-Aware Navigation*
Gianluca Monaci, Michel Aractingi, Tomi Silander (NAVER LABS Europe)

2:30-2:45pm *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 *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, TU Delft
Chair: Dylan Shell

3:30-4:00pm **Paper Session 8: Short talks**
Chair: Abdeslam Boularias (Rutgers University)

3:30-3:35pm *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 *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 *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 *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 *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 **Poster session**
Arledge 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 **Banquet**
Pier 40 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	*KernelGPA: A Deformable SLAM Back-end* Fang Bai, Adrien Bartoli (Université Clermont Auvergne)
9:05-9:10am	*CURL: Continuous, Ultra-compact Representation for LiDAR* Kaicheng Zhang, Ziyang Hong, Shida Xu, Sen Wang (Heriot-Watt University)
9:10-9:15am	*SEER: Unsupervised and sample-efficient environment specialization of image descriptors* Peer Neubert, Stefan Schubert (TU Chemnitz)
9:15-9:20am	*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	*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	*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	*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	*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	*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	*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 *FuseBot: RF-Visual Mechanical Search*
Tara Boroushaki , Laura Dodds, Nazish Naeem, Fadel Adib (MIT)

10:45-10:50am *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 *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 *Meta Value Learning for Fast Policy-Centric Optimal Motion Planning*
Siyuan Xu, Minghui Zhu (The Pennsylvania State University)

11:05-11:10am *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 *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 *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 *Action Conditioned Tactile Prediction: case study on slip prediction*
Willow Mandil, Amir Ghalamzan, Kiyanoush Nazari (Univercity of Lincoln)

2:05-2:10pm *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 *Understanding Dynamic Tactile Sensing for Liquid Property Estimation*
Hung-Jui Huang, Xiaofeng Guo, Wenzhen Yuan (CMU)

2:15-2:20pm *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 *Distributed Optimisation and Deconstruction of Bridges by Self-Assembling Robots*
Edward Bray, Roderich Gross (The University of Sheffield)

2:35-2:40pm *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 *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 *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**