



ANNUAL ROBOTICS WORKSHOP 2021

September 24, 2021 9am - 4pm
Busch Student Center, The Cove

NSF NRT Socially Cognizant Robotics for a Technology Enhanced Society
<https://robotics.rutgers.edu/>

co-sponsored by DATA-INSPIRE (DATA science for INtelligent Systems and People Interaction), an NSF TRIPODS Institute based at Rutgers University

9:00am – 10:00am The Cove
Introduction of SOCRATES and Rutgers talks

Faculty Team for SOCRATES NRT:

Kristin Dana, Professor, Electrical and Computer Engineering, SOE

Kostas Bekris, Associate Professor, Computer Science, SAS

Jacob Feldman, Professor, Department of Psychology, Center for Cognitive Science, SAS

Jingang Yi, Professor, Mechanical and Aerospace Engineering, SOE

Clinton Andrews, Professor, Urban Planning and Policy Development Assoc. Dean Research, BSPPP

Pernille Hemmer, Associate Professor, Department of Psychology, Center for Cognitive Science, SAS

Hal Salzman, Professor, Bloustein School of Planning and Public Policy

Aaron Mazzeo, Associate Professor, Mechanical and Aerospace Engineering, SOE

Matthew Stone, Professor and Department Chair, Computer Science, SAS

10:00am - 10:40am Front Outside Patio of Busch Student Center (by Bartholomew Road)
Poster session

Coffee will be available

Noah Harmatz

Scrubbing Robots for the Sanitization of Surfaces (Advisor: Aaron Mazzeo)

Faith Johnson

Fueal Steering – Hierarchical Learning for Steering Angle Prediction (Advisor: Kristin Dana)

Richard Magnotti

A Framework for Improving Commonsense Reasoning System Transparency and Accuracy with Human Feedback (Advisor: Matthew Stone)

Peri Akiva

Finding Berries: Automated Agriculture Evaluation using Computer Vision (Advisor: Kristin Dana)

Laura Saad

An ACT-R Model of a Temporal Binding Task (Advisors: Pernille Hemmer and Julie Musolino)

Aravind Sivaramakrishnan

Improving Kinodynamic Planners for Vehicular Navigation with Learned Goal-Reaching Controllers (Advisor: Kostas Bekris)

Kun Wang

D³ PET: D³ PET: A Data Driven Differentiable Physics Engine for Tensegrity Robots (Advisor: Kostas Bekris)

Yinglong Miao

MPC-MPNet: Model-Predictive Motion Planning Networks for Fast, Near-Optimal Planning under Kinodynamic Constraints (Advisor: Kostas Bekris)

Edgar Granados

The ML4KP library: Integrating Machine Learning and Kinodynamic Motion Planning (Advisor: Kostas Bekris)

Matthew Purri

Teaching Cameras to Feel (Advisor: Kristin Dana)

10:40am – 12:00pm The Cove
Invited Talks from Industry

Itai Segall, Nokia Bell-Labs

The Resh Language & Runtime System for Orchestration of Autonomous Robots

Joey Durham, Amazon Robotics (virtual talk)

What Amazon Robotics is doing and working on for the Future

Hui Cheng, Seedland Group

AI-Enabled Smart Home, Smart Community and Smart City at Scale

~ Break ~

1:00pm – 2:20pm The Cove
Invited Talks from Industry

Rakesh (Teddy) Kumar, SRI International

Human State Measurement, Augmented Reality and Assessment of Collaboration

Yoichiro Endo, Intelligent Automation, Inc.

Robotics Research at Intelligent Automation, Inc. (IAI)

Dr. Daewon Lee, Samsung AI Center-New York

Look, listen and feel: towards the next step for robot autonomy

2:20pm – 3:00pm Front Outside Patio of Busch Student Center (by Bartholomew Road)
Poster session

Rui Wang

Taming Combinatorial Challenges of Object Rearrangement in Confined Workspaces
(Advisor: Kostas Bekris)

Shiyang Lu

Online Object Model Reconstruction and Reuse for Lifelong Improvement of Robot Manipulation
(Advisor: Kostas Bekris)

Chengguzi Han

Lagrangian Particle-based Coupled Simulations of Fracture and Diffusion in Thin Membranes
(Advisor: Mridul Aanjaneya)

Haozhe Su

Unified constitutive models and applications (Advisor: Mridul Aanjaneya)

Ewerton R Vieira: Persistent Homology applied to high-level planning for pushing actions
(Advisors: Konstantin Mischaikow & Kostas Bekris)

Serena DeStefani

The Interplay Between Local and Global Strategies in Navigational Decisions (Advisor: Jacob Feldman)

Liam Schramm

Learning-Guided Exploration for Efficient Sampling-Based Motion Planning in High Dimensions
(Advisor: Abdeslam Boularias)

Junchi Liang

Learning Sensorimotor Primitives of Sequential Manipulation Tasks from Visual Demonstrations
(Advisor: Abdeslam Boularias)

Baber Khalid

Explaining Dialogue Evaluation Metrics using Adversarial Behavioral Analysis (Advisor: Matthew Stone)

Troy McMahon

Terrain-Aware Motion Planning for Physically Simulated Systems

Ziyad Abouelenin

Paper-Based Electrodes for Hand Prosthesis Control

3:00pm – 4:00pm The Cove
Panel on Ethics in Robotics

Alex Guerrero, Moral Philosophy, Legal and Political Philosophy

T. Patrick Hill, Ethics and science/technology

Susanna Schellenberg, Philosophy (virtual)