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
Fuedal 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
D^3 PET: D^3 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
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)

Chengguizi 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

Alex Guerrero, Moral Philosophy, Legal and Political Philosophy

T. Patrick Hill, Ethics and science/technology

Susanna Schellenberg, Philosophy (virtual)