Selim Engin

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Education

University of Minnesota — Minneapolis, MN
Ph.D. Student in Computer Science and Engineering — *Sept 2016 - Oct 2022*
Advisor: Prof. Volkan Isler

Sabancı University — Istanbul, Turkey
B.Sc. in Mechatronics Engineering, with high honors — *Sept 2012 - June 2016*

Experience

Samsung Research Artificial Intelligence Center — New York City, NY
Senior Research Scientist — *Oct 2022 - present*

Sony — San Mateo, CA (online)
Research Intern — *Jun 2021 - Aug 2021*

- Learning-based models for motion prediction and in-betweening to animate human characters

Samsung Research Artificial Intelligence Center — New York City, NY
Research Intern — *Jan 2019 - Aug 2019*

- Single-view 3D reconstruction; multi-view stereo; object part decomposition from images

Robotic Sensor Networks Lab — Minneapolis, MN
Graduate Student — *Sept 2016 - Oct 2022*

- Playing zero-sum multi-agent games using compressed state representations
- Active localization and tracking of targets using bearing-only sensors
- Self-supervised learning methods for novel view synthesis and 3D reconstruction
- Algorithm design and analysis for network formation of a multi-robot system

Knowledge Representation and Reasoning Group — Istanbul, Turkey
Undergraduate Researcher — *Sept 2015 - June 2016*

- Action planning for a robot arm to rearrange a cluttered scene by manipulating objects

Joint Institute of Engineering, Sun Yat-sen – Carnegie Mellon University — Guangdong, China
Undergraduate Research Intern — *June 2015 - Sept 2015*

Automation and Information Systems, Technical University of Munich — Munich, Germany
Undergraduate Research Intern — *July 2014 - Sept 2014*

Publications

1. S. Agrawal, N. Chavan-Dafle, I. Kasahara, **S. Engin**, J. Huh, V. Isler, Real-time Simultaneous Multi-Object 3D Shape Reconstruction, 6DoF Pose Estimation and Dense Grasp Prediction, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2023.
2. **S. Engin**, V. Isler, Neural Optimal Control using Learned System Dynamics, *International Conference on Robotics and Automation (ICRA)*, 2023.
3. J-J. Chao, **S. Engin**, N. Hani, V. Isler, Category-Level Global Camera Pose Estimation with Multi-Hypothesis Point Cloud Correspondences, *International Conference on Robotics and Automation (ICRA)*, 2023.

4. **S. Engin**, Q. Jiang, V. Isler, Learning to Play Pursuit-Evasion with Visibility Constraints, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2021.

5. **S. Engin**, V. Isler, Establishing Fault-Tolerant Connectivity of Mobile Robot Networks, *IEEE Transactions on Control of Network Systems (TCNS)*, 2021.

6. N. Häni, **S. Engin**, J-J. Chao, V. Isler, Continuous Object Representation Networks: Novel View Synthesis without Target View Supervision, *Conference on Neural Information Processing Systems (NeurIPS)*, 2020.

7. **S. Engin**, V. Isler, Active Localization of Multiple Targets Using Noisy Relative Measurements, *Workshop on the Algorithmic Foundations of Robotics (WAFR)*, 2020 (invited to IJRR special issue).

8. **S. Engin**, E. Mitchell, D. Lee, V. Isler, D. D. Lee, Higher Order Function Networks for View Planning and Multi-View Reconstruction, *International Conference on Robotics and Automation (ICRA)*, 2020.

9. E. Mitchell, **S. Engin**, V. Isler, D. D. Lee, Higher Order Function Networks for Learning Composable 3D Object Representations, *International Conference on Learning Representations (ICLR)*, 2020.

10. **S. Engin**, V. Isler, Asynchronous Network Formation in Unknown and Unbounded Environments, *International Conference on Robotics and Automation (ICRA)*, 2019.

11. **S. Engin**, V. Isler, Minimizing Movement to Establish the Connectivity of Randomly Deployed Robots, *International Conference on Automated Planning and Scheduling (ICAPS)*, 2018.

12. H. Bayram, N. Stefas, **S. Engin**, V. Isler, Tracking Wildlife with Multiple UAVs: System Design, Safety and Field Experiments, *IEEE International Symposium on Multi-Robot and Multi-Agent Systems (MRS)*, 2017.

Patents

- Higher-order function networks for learning composable three-dimensional (3d) object and operating method thereof (Patent No.: US 10,922,877)

Honors

- Highlighted Reviewer at ICLR (2022)
- Cedar Creek Ecosystem Science Reserve Fellowship (2018)
- University of Minnesota CSE Fellowship (2017)
- Sabancı University Scholarship (2012-16)

Teaching Experience

- CSCI 1133 - Introduction to Computing and Programming Concepts (Spring 2017, Fall 2017):
  GitHub organization setup for the class, assignment preparation, grading and auto-grading
- CSCI 5561 - Computer Vision:
  Grading and giving feedback for term projects

Professional Services

Reviewer for ICRA, IROS, NeurIPS, ICLR, WACV, ISER, WAFR
Journals: Transactions on Robotics, Robotics and Automation Letters, Artificial Intelligence (AIJ)
Session chair at: IROS 2021 (Machine Learning for Robot Control)

Technical Skills

Languages: Python, C, C++, Matlab/Simulink, Standard ML, HTML/CSS
Frameworks and Libraries: PyTorch, JAX, Tensorflow, NumPy, OpenCV, Open3D, PCL, CPLEX
Robotics and Simulation: ROS, V-REP, Gazebo, PyBullet, MuJoCo, Blender, SolidWorks