Selim Engin

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Education

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

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

Experience

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 - present*

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

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. Engin**, Q. Jiang, V. Isler, Learning to Play Pursuit-Evasion with Visibility Constraints, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2021.
2. **S. Engin**, V. Isler, Establishing Fault-Tolerant Connectivity of Mobile Robot Networks, *IEEE Transactions on Control of Network Systems (TCNS)*, 2021.
3. 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.
4. **S. Engin**, V. Isler, Active Localization of Multiple Targets Using Noisy Relative Measurements, *Workshop on the Algorithmic Foundations of Robotics (WAFR)*, 2020.

5. **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.

6. 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.

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

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

9. 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

- 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, preparing assignments, grading and auto-grading
- CSCI 5561 - Computer Vision:
  Grading term projects and giving feedback

Professional Services

Reviewer for IROS (2017-20), ICRA (2018-21), NeurIPS (2019-21), ICLR (2020-22), WAFR (2020)
Journals: Transactions on Robotics, Robotics and Automation Letters, Artificial Intelligence (AIJ)
Session chair at: IROS 2021 (Machine Learning for Robot Control)

Recent Talks

- Aerospace Engineering and Mechanics Research Seminar, Virtual, April 2020
- CS Graduate Research and Discussion Seminars, Minneapolis, MN, March 2020
- Samsung Vision Workshop, Seoul, Korea, November 2019
- Samsung AI Center Research Seminar, New York City, NY, November 2018
- UMN Visual Computing & AI Seminar, Minneapolis, MN, November 2018

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, MuJoCo, Blender, SolidWorks