ESEN YEL

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RESEARCH EXPERIENCE

Postdoctoral Scholar *October 2021 - Present*
Stanford University Stanford, CA
Stanford Intelligent Systems Lab (SISL)
Advisor: Mykel Kochenderfer

Graduate Research Assistant *2016 - 2021*
University of Virginia Charlottesville, VA
Autonomous Mobile Robots Lab
Advisor: Nicola Bezzo

Graduate Research Assistant *2014 - 2016*
Bogazici University Istanbul, Turkey
Intelligent Systems Lab
Advisor: H. Işıl Bozma

EDUCATION

Ph.D., Systems Engineering *August 2021*
University of Virginia Charlottesville, VA
Dissertation: *Online Predictive Monitoring and Proactive Planning for Safe Autonomous Robot Operations*

M.S., Electrical and Electronics Engineering *August 2016*
Bogazici University Istanbul, Turkey
Thesis: *Appearance-based Self Localization and Navigation Using Place Memory*

B.S., Electrical and Electronics Engineering *June 2014*
Bogazici University Istanbul, Turkey

RESEARCH INTERESTS

• Assured autonomy • Safe planning under uncertainty • Runtime monitoring • Robot learning

PUBLICATIONS

Journal and Magazine Articles

- **E. Yel**, T. X. Lin, N. Bezzo, "*Computation-Aware Adaptive Planning and Scheduling for Safe Unmanned Airborne Operations*" Journal of Intelligent and Robotic Systems, 2020 (**impact factor: 2.259**)
- **E. Yel**, T. Carpenter, C. di Franco, R. Ivanov, Y. Kantaros, I. Lee, J. Weimer, N. Bezzo, "*Assured Runtime Monitoring and Planning: Towards Verification of Deep Neural Networks for Safe Autonomous Operations*" Robotics and Automation Magazine, Special Issue on Deep Learning and Machine Learning in Robotics, 2020 (**impact factor: 4.250**)

Conference Papers

- **E. Yel**, N. Bezzo, "*A Meta-Learning-based Trajectory Tracking Framework for UAVs under Degraded Conditions*", IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2021
- **E. Yel**, N. Bezzo, "*GP-based Runtime Planning, Learning, and Recovery for Safe UAV Operations under Unforeseen Disturbances*" IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2020
- **E. Yel** and N. Bezzo, "*Fast Run-time Monitoring, Replanning, and Recovery for Safe Autonomous System Operations*" 2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Macau, China, pp. 1661-1667.
- **E. Yel**, T. X. Lin and N. Bezzo, "*Self-triggered Adaptive Planning and Scheduling of UAV Operations,*" IEEE International Conference on Robotics and Automation (ICRA), Brisbane, 2018
- T. X. Lin, **E. Yel** and N. Bezzo, "*Energy-aware Persistent Control of Heterogeneous Robotic Systems,*" American Control Conference (ACC), Milwaukee, WI, 2018
- **E. Yel**, T. X. Lin and N. Bezzo, "*Reachability-based self-triggered scheduling and replanning of UAV operations,*" NASA/ESA Conference on Adaptive Hardware and Systems (AHS), Pasadena, CA, 2017, pp. 221-228.

Workshop and Symposium Papers

- G. Glaubit, K. Kleeman, N. Law, J. Thomas, S. Gao, R. Peddi, **E. Yel**, N. Bezzo "*Fast, Safe, and Proactive Runtime Planning and Control of Autonomous Ground Vehicles in Changing Environments*" IEEE Systems and Information Engineering Design Symposium (SIEDS), 2021
- **E. Yel** and N. Bezzo, "*Reachability-based Adaptive UAV Scheduling and Planning in Cluttered and Dynamic Environments*" ICRA Workshop on Informative Path Planning and Adaptive Sampling, Brisbane, 2018
- **E. Yel**, T. X. Lin and N. Bezzo,"*Reachability-based Self-triggered UAV Motion Planning,*" International Symposium on Aerial Robotics, Philadelphia, PA, 2017
- **E. Yel** and H.I. Bozma, "*Verifying the Recognized Place Through Localization,* " IROS Workshop on Introspective Methods for Reliable Autonomy, Vancouver 2017

AWARDS

Link Lab Outstanding Graduate Research Award *2021*
Link Lab, University of Virginia
"This award was established as a way for faculty to recognize Link Lab students who have demonstrated excellence in research during the academic year."

RSS Pioneers Workshop Participant *2021*

"RSS Pioneers brings together a cohort of the world's top early-career researchers."

Link Lab Student Seminar Award *2020*
Link Lab, University of Virginia

"The Link Lab Graduate Seminar provides a prestigious honor and award for a PhD student to showcase the highest quality research happening at Link Lab conveying impact and relevance in the CPS field"

Travel Awards
IEEE/RSJ International Conference on Intelligent Robots and Systems *2019*
IEEE International Conference on Robotics and Automation PhD Forum *2018*

Ruthie Oxford Memorial Award - Promising Graduate Student *2018*
University of Virginia, Department of Systems and Information Engineering

Dean's Honor List *2014*
Bogazici University, School of Engineering

TEACHING EXPERIENCE

Graduate Teaching Assistantship Bogazici University

System Dynamics and Control (Discussion and Grading TA) *Spring 2015, Spring 2016*
Control Technology and Design (Lab and Grading TA) *Fall 2015*
Introduction to Electrical Engineering (Discussion TA) *Fall 2015*

Undergraduate Teaching Assistantship Bogazici University

System Dynamics and Control (Discussion TA) *Spring 2014*
Orientation to Electrical Engineering (Lab TA) *Fall 2013*

PRESENTATIONS

Stanford SystemX 2021 Fall Conference, Poster *11/2021*
UVA Link Lab Student Seminars, Talk *12/2020*
UVA Link Lab Student Flash Talks, Talk *12/2020*
UVA ESE Graduate Symposium, Poster *02/2018, 02/2020*
ICRA PhD Forum, Poster *05/2018*
UVA ECE Student Research Session, Poster *08/2017*

PROFESSIONAL ACTIVITIES AND LEADERSHIP

Professional Service

Web & Finance Chair, Learning for Dynamics & Control Conference (L4DC) *2022*
Program Committee Member, Robotics: Science and Systems (RSS) Pioneers Workshop *2022*
Session co-chair, IEEE/RSJ International Conference on Intelligent Robots (IROS) *2021*
Panelist, UVA Link Lab Academic Writing Panel *2021*
Co-organizer, UVA INFORMS Alumni Panel *2020*
President, UVA Student Chapter of INFORMS *2020*
Vice President, UVA Student Chapter of INFORMS *2018-2019*
Session Chair, IEEE Systems and Information Engineering Design Symposium *2019*

Review Activities

IEEE International Conference on Robotics and Automation (ICRA)
IEEE/RSJ International Conference on Intelligent Robots (IROS)
IEEE Robotics and Automation Letters (RA-L)
Conference on Robot Learning (CoRL)
IEEE Conference on Decision and Control (CDC)
American Control Conference (ACC)
ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS) (subreviewer)
International Conference on Runtime Verification (RV)
IEEE Computer Magazine Journal of Artificial Intelligence Research (JAIR)

Mentorship Activities

Graduate Mentor, Society of Women Engineers at University of Virginia *2017*

Professional Memberships

Institute of Electrical and Electronics Engineers (IEEE) *2017-Present*
Societies: Robotics and Automation Society (RAS), Young Professionals (YP)

PROFESSIONAL EXPERIENCE

Engineering Intern *Aug. 2013 - Sept. 2013*
RMK Marine Istanbul, Turkey
-Automation systems analysis of coast guard ships

Engineering Intern *June 2013 - July 2013*
Turkish Aerospace Industries Ankara, Turkey
-Automation system modeling for missile fuses

Engineering Intern *June 2012 - July 2012*
Lely Industries Istanbul, Turkey
-Vision-based object recognition algorithm for an agricultural cleaning robot

SKILLS

Programming: C/C++, ROS, Matlab, Python
Tools: Latex, Microsoft Office, HitFilm (video editor)
Languages: Turkish (Native), English (Fluent)