ESEN YEL

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EDUCATION

Ph.D., Systems Engineering *Aug. 2021 (expected)*
University of Virginia Charlottesville, VA
Dissertation: *Online Predictive Monitoring and Planning for Safe Autonomous Robotic Systems*

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

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

RESEARCH EXPERIENCE

Graduate Research Assistant *2016 - Present*
University of Virginia Charlottesville, VA
Advisor: Nicola Bezzo

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

RESEARCH INTERESTS

• Assured autonomy • Safe motion planning • Reachability analysis • Robot learning
• Runtime monitoring and recovery • Self-triggered scheduling • Unmanned aerial vehicles

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, "*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.

Under Review

- **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
- M. Cleaveland, **E. Yel**, Y. Kantaros, I. Lee, N. Bezzo, "*Learning Enabled Fast Planning and Control in Dynamic Environments with Intermittent Information*", IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2021

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

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*

AWARDS

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

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

PRESENTATIONS

UVA Link Lab Student Seminars, Talk *2020*
UVA Link Lab Student Flash Talks, Talk *2020*
UVA ESE Graduate Symposium, Poster *2018, 2020*
ICRA PhD Forum, Poster *2018*
UVA ECE Student Research Session, Poster *2017*

PROFESSIONAL ACTIVITIES AND LEADERSHIP

Professional Service
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

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)