

ESEN YEL

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EDUCATION

Ph.D., Systems Engineering

University of Virginia

Dissertation: *Online Predictive Monitoring and Proactive Planning for Safe Autonomous Robot Operations*

August 2021

Charlottesville, VA

M.S., Electrical and Electronics Engineering

Bogazici University

Thesis: *Appearance-based Self Localization and Navigation Using Place Memory*

August 2016

Istanbul, Turkey

B.S., Electrical and Electronics Engineering

Bogazici University

June 2014

Istanbul, Turkey

RESEARCH EXPERIENCE

Graduate Research Assistant

University of Virginia

Advisor: Nicola Bezzo

2016 - Present

Charlottesville, VA

Graduate Research Assistant

Bogazici University

Advisor: H. Işıl Bozma

2014 - 2016

Istanbul, Turkey

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, “*A Meta-Learning-based Trajectory Tracking Framework for UAVs under Degraded Conditions*”, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2021 (to appear)
- **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	<i>2018</i>
University of Virginia, Department of Systems and Information Engineering	
Dean's Honor List	<i>2014</i>
Bogazici University, School of Engineering	

TEACHING EXPERIENCE

Graduate Teaching Assistantship	Bogazici University
System Dynamics and Control (Discussion and Grading TA)	<i>Spring 2015, Spring 2016</i>
Control Technology and Design (Lab and Grading TA)	<i>Fall 2015</i>
Introduction to Electrical Engineering (Discussion TA)	<i>Fall 2015</i>
Undergraduate Teaching Assistantship	Bogazici University
System Dynamics and Control (Discussion TA)	<i>Spring 2014</i>
Orientation to Electrical Engineering (Lab TA)	<i>Fall 2013</i>

PRESENTATIONS

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

PROFESSIONAL ACTIVITIES AND LEADERSHIP

Professional Service	
Panelist, UVA Link Lab Academic Writing Panel	<i>2021</i>
Co-organizer, UVA INFORMS Alumni Panel	<i>2020</i>
President, UVA Student Chapter of INFORMS	<i>2020</i>
Vice President, UVA Student Chapter of INFORMS	<i>2018-2019</i>
Session Chair, IEEE Systems and Information Engineering Design Symposium	<i>2019</i>
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	<i>2017</i>
Professional Memberships	
Institute of Electrical and Electronics Engineers (IEEE)	<i>2017-Present</i>
Societies: Robotics and Automation Society (RAS), Young Professionals (YP)	

PROFESSIONAL EXPERIENCE

Engineering Intern

RMK Marine

-Automation systems analysis of coast guard ships

Aug. 2013 - Sept. 2013

Istanbul, Turkey

Engineering Intern

Turkish Aerospace Industries

-Automation system modeling for missile fuses

June 2013 - July 2013

Ankara, Turkey

Engineering Intern

Lely Industries

-Vision-based object recognition algorithm for an agricultural cleaning robot

June 2012 - July 2012

Istanbul, Turkey

SKILLS

Programming: C/C++, ROS, Matlab, Python

Tools: Latex, Microsoft Office, HitFilm (video editor)

Languages: Turkish (Native), English (Fluent)