

# ESEN YEL

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## EDUCATION

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### Ph.D., Systems Engineering

University of Virginia

Dissertation: *Online Predictive Monitoring and Planning for Safe Autonomous Robotic Systems*

Aug. 2021 (*expected*)

Charlottesville, VA

### M.S., Electrical and Electronics Engineering

Bogazici University

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

2016

Istanbul, Turkey

### B.S., Electrical and Electronics Engineering

Bogazici University

2014

Istanbul, Turkey

## RESEARCH EXPERIENCE

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### 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

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

## PUBLICATIONS

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### 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

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### Graduate Teaching Assistantship

System Dynamics and Control (Discussion and Grading TA)  
Control Technology and Design (Lab and Grading TA)  
Introduction to Electrical Engineering (Discussion TA)

Bogazici University  
*Spring 2015, Spring 2016*  
*Fall 2015*  
*Fall 2015*

### Undergraduate Teaching Assistantship

System Dynamics and Control (Discussion TA)  
Orientation to Electrical Engineering (Lab TA)

Bogazici University  
*Spring 2014*  
*Fall 2013*

## AWARDS

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<b>RSS Pioneers Workshop Participant</b>	2021
<i>"RSS Pioneers brings together a cohort of the world's top early-career researchers."</i>	
<b>Link Lab Student Seminar Award</b>	2020
Link Lab, University of Virginia	
<i>"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"</i>	
<b>Travel Awards</b>	
IEEE/RSJ International Conference on Intelligent Robots and Systems	2019
IEEE International Conference on Robotics and Automation PhD Forum	2018
<b>Ruthie Oxford Memorial Award - Promising Graduate Student</b>	2018
University of Virginia, Department of Systems and Information Engineering	
<b>Dean's Honor List</b>	2014
Bogazici University, School of Engineering	

## PRESENTATIONS

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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

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<b>Professional Service</b>	
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
<b>Review Activities</b>	
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	
<b>Mentorship Activities</b>	
Graduate Mentor, Society of Women Engineers at University of Virginia	2017
<b>Professional Memberships</b>	
Institute of Electrical and Electronics Engineers (IEEE)	2017-Present
Societies: Robotics and Automation Society (RAS), Young Professionals (YP)	

## PROFESSIONAL EXPERIENCE

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### **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

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

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

**Languages:** Turkish (Native), English (Fluent)