

# ESEN YEL

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## RESEARCH EXPERIENCE

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### Postdoctoral Scholar

Stanford University  
Stanford Intelligent Systems Lab (SISL)  
Advisor: Mykel Kochenderfer

10/2021 - Present  
Stanford, CA

### Graduate Research Assistant

University of Virginia  
Advisor: Nicola Bezzo

2016 - 2021  
Charlottesville, VA

### Graduate Research Assistant

Bogazici University  
Advisor: H. Işıl Bozma

2014 - 2016  
Istanbul, Turkey

## EDUCATION

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### Ph.D., Systems Engineering

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

08/2021

Charlottesville, VA

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

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

08/2016

Istanbul, Turkey

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

Bogazici University

06/2014

Istanbul, Turkey

## RESEARCH INTERESTS

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

## 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, “*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

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**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

<b>Ruthie Oxford Memorial Award - Promising Graduate Student</b>	<i>2018</i>
University of Virginia, Department of Systems and Information Engineering	
<b>Dean's Honor List</b>	<i>2014</i>
Bogazici University, School of Engineering	

## TEACHING EXPERIENCE

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<b>Guest Lecture</b>	Stanford University
Sequential Decision Making	<i>Winter 2022</i>
<b>Graduate Teaching Assistantship</b>	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>
<b>Undergraduate Teaching Assistantship</b>	Bogazici University
System Dynamics and Control (Discussion TA)	<i>Spring 2014</i>
Orientation to Electrical Engineering (Lab TA)	<i>Fall 2013</i>

## PRESENTATIONS

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Stanford SystemX 2021 Fall Conference, Poster	<i>11/2021</i>
Stanford Intelligent Systems Lab, Invited Talk	<i>04/2021</i>
UPenn GRASP Lab, Invited Talk	<i>02/2021</i>
UVA Link Lab Student Seminars, Talk	<i>12/2020</i>
UVA Link Lab Student Flash Talks, Talk	<i>12/2020</i>
UVA ESE Graduate Symposium, Poster	<i>02/2018, 02/2020</i>
ICRA PhD Forum, Poster	<i>05/2018</i>
UVA ECE Student Research Session, Poster	<i>08/2017</i>

## PROFESSIONAL ACTIVITIES AND LEADERSHIP

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<b>Professional Service</b>	
Web and Financial Chair, Learning for Dynamics & Control Conference (L4DC)	<i>2022</i>
Program Committee, RSS Pioneers Workshop	<i>2022</i>
Session co-chair, IEEE/RSJ International Conference on Intelligent Robots (IROS)	<i>2021</i>
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>
<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	

Journal of Artificial Intelligence Research (JAIR)

Journal of Aerospace Information Systems

### **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)

## **SKILLS**

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

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

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