

# Esen Yel

<https://esenyel.github.io/personal/>

✉ esenyel@virginia.edu    in esen-yel

## Education

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### University of Virginia

*Charlottesville, VA, USA*

PHD IN SYSTEMS ENGINEERING

*Aug. 2016 - Current*

- Thesis supervisor: Nicola Bezzo
- Courses taken include: Autonomous Mobile Robots, Nonlinear Control, Cooperative Autonomous Systems, Stochastic Modeling, Safety and Security for CPS, Optimization for Machine Learning
- Current GPA: 3.96/4.00

### Bogazici University

*Istanbul, Turkey*

M.S. IN ELECTRICAL AND ELECTRONICS ENGINEERING

*Graduation: Aug. 2016*

- Thesis under H. Işıl Bozma on appearance based mobile robot localization and navigation
- Courses taken include: Digital Control, Decentralized Control, Machine Vision, Pattern Recognition, Image Processing, Statistical Signal Analysis, Wearable Computing
- Cumulative GPA: 3.88/4.00

### Bogazici University

*Istanbul, Turkey*

B.S. IN ELECTRICAL AND ELECTRONICS ENGINEERING

*Graduation: July 2014*

- Graduation project under Yagmur Denizhan on population control of a prey-predator system via super-predator
- Cumulative GPA: 3.56/4.00

## Academic Experience

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### University of Virginia

*Charlottesville, VA, USA*

GRADUATE RESEARCH ASSISTANT

*Aug. 2016 - Current*

- Development of a novel reachability-based self-triggered scheduling framework for computation-aware UAV operations
- Leveraging machine learning techniques towards fast reachability for autonomous UAV operations
- Development of runtime planning, recovery and learning techniques for systems operating under unforeseen disturbances

### Bogazici University

*Istanbul, Turkey*

GRADUATE RESEARCH ASSISTANT

*Sept. 2014 - Aug. 2016*

- Development of a novel appearance-based mobile robot localization technique
- Development of a visual place recognition verification approach

### Bogazici University

*Istanbul, Turkey*

GRADUATE TEACHING ASSISTANT

*Jan. 2015 - June 2016*

- System Dynamics and Control: Conduction problem sessions
- Control Technology and Design: Conduction lab sessions and grading homeworks
- Introduction to Electrical Engineering: Designing and grading quizzes, conducting problem sessions

## Awards

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- IROS-SDC Travel Award, 2019
- Ruthie Oxford Memorial Award - Promising graduate student (University of Virginia, 2018)
- Dean's Honor List (Bogazici University, 2014)

## Publications

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- **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) (to appear)
- **E. Yel**, Tony X. Lin, N. Bezzo, "Computation-Aware Adaptive Planning and Scheduling for Safe Unmanned Airborne Operations" Journal of Intelligent and Robotic Systems, 2020
- **E. Yel**, T. Carpenter, C. di Franco, R. Ivanov, Y. Kantaros, I. Lee, J. Weimer, N. Bezzo, "Assured Run-time 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
- **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** 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, "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.
- **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

## Professional Activities

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### REVIEWER FOR:

- IEEE/RSJ International Conference on Intelligent Robots (IROS)
- IEEE Conference on Decision and Control (CDC)
- American Control Conference (ACC)
- International Conference on Runtime Verification (RV)
- Conference on Robot Learning (CoRL)
- IEEE Computer Magazine

### STUDENT MEMBER OF:

- IEEE (Robotics and Automation Society)

### VICE PRESIDENT OF:

- INFORMS UVA Student Chapter (2018-2020)

### SESSION CHAIR FOR:

- IEEE Systems and Information Engineering Design Symposium 2019, Charlottesville, VA

## Work Experience

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### RMK Marine

#### INTERN ENGINEER

- Analysis on automation systems of coast guard ships

*Istanbul, Turkey*

*Aug. 2013 - Sept. 2013*

### Turkish Aerospace Industries

#### INTERN ENGINEER

- Designing a model for automation system of missile fuses on Simulink

*Ankara, Turkey*

*June 2013 - July 2013*

### Lely Industries

#### INTERN ENGINEER

- Development of a vision-based fence recognition algorithm for a farm cleaning robot
- Development of a user interface application for IP cameras

*Istanbul, Turkey*

*June 2012 - July 2012*

## Skills

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- **Software:** ROS, Matlab, OpenCV, Simulink, Visual Studio
- **Programming Languages:** C, C++ (preferred), Python
- **Languages:** Turkish (Native), English (Proficient)