

Ulas Berk Karli

Date of Birth: 07/06/1998

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Education:

2021-Present	Johns Hopkins University – Baltimore, MD/USA Master of Science in Engineering in Robotics (MSE Robotics) GPA: 3.67/4.00
2016-2021	Koc University – Istanbul/Turkey Double Major Engineering, Mechanical Engineering and Computer Engineering/Science Graduated with Cum Laude GPA:3.44/4.00

Publications:

2023	Ulas Berk Karli*, Shiye Cao*, and Chien-Ming Huang "What If It Is Wrong": Effects of Power Dynamics and Trust Repair Strategy on Trust and Compliance in HRI Conference: The Proceedings of 2023 ACM/IEEE International Conference on Human-Robot Interaction (HRI'23) acceptance rate: 25.3% *equal contribution
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Awards:

2018-2020	Vehbi Koc Scholar Given annually to students with SPA or GPA over 3.5 each semester.
2018-2020	Dean's Honor Roll Students with SPA or GPA over 3.0 each semester are placed on Dean's Honor Roll.
2014	Duke of Edinburgh's International Award – Bronze Standard Award program for youth self-improvement, founded by Duke of Edinburgh, Prince Philip.

Research Experience:

Fall 21 - present	Human-Robot Collaboration for non-social robots Currently working on understanding the trust repair strategies in human-robot collaboration in different power dynamics conditions. This work is being pursued as a part of Intuitive Computing Laboratory (ICL) at JHU.
Spring 20 – Fall 21	Transfer Learning in Model-Based Reinforcement Learning Currently working on transferring learned model and policy in dyna-style model-based RL algorithms as well as multi-task learning to improve learning complex tasks in simulation from simpler and safe starting points in robot locomotion problems.

Paper:

- Model-Based Transfer and Multi-Task Reinforcement Learning for Robot Locomotion – preprint

Course Projects:

10.2021-01.2022	Haptic Pen – Haptic Interface Design for HRI We have built a haptic pen that allows users to feel object in space with the help of a Microsoft HoloLens. Novelty of this project is that it is untethered meaning there is no need to ground the device which increases the workspace drastically.
10.2020-01.2021	Shallow Networks for Semantic Segmentation – Computer Vision with Deep Learning Course I worked on knowledge distillation in deep neural networks to shallow networks while preserving accuracy in semantic segmentation task. I trained and distilled several models and compared the accuracy of the distilled shallow model with the teacher model and reported my findings. I learned about knowledge distillation and semantic segmentation models in deep learning.
03.2019-06.2019	Hand Gesture Controlled Robotic Manipulator - Mechatronics Course We have built a 6-DOF robotic manipulator using 3D printed parts only and built a glove for the user to control the robotic manipulator with hand gestures as a group of two. We have researched about building of robotic manipulators as well as forward and backward kinematics. We also used Arduino and Raspberry Pi for controlling the robotic manipulator. Thus, we gained knowledge Python and Arduino as well as 3D printing techniques of PLA and ABS.

02.2019-06.2019 HER+NAF – Reinforcement Learning Course

As a group of two we recreated the results of the paper HER (Hindsight Experience Replay) written by OpenAI researchers and instead of combining with DDPG, as they did, we combined it with NAF (Normalized Advantage Functions) and managed to get good results in reach task with Fetch robot in simulation.

02.2018-06.2018 Bipedal Humanoid Walking Robot – Dynamics Course

We designed and built a bipedal humanoid robot starting from waist down. After building the robot we dynamically analyzed its walking motion in MATLAB. We learned how a bipedal gate works and what motion is required for a stable gate. We also experienced manufacturing a detailed robotic leg.

Teaching Experience:

Fall 21

Student Teaching Assistant – JHU / EN.530.641 – Statistical Learning for Engineers

I am one of the two teaching assistants of the course. I grade homework's and hold office hours.

Spring 20

Student Teaching Assistant – KU / MECH 307 - Numerical Methods

I was one of the three teaching assistants of the course. I administered problem sessions and held office hours.

Internships:

07.2019

Big Data Department intern at TÜBİTAK UZAY/Turkish Space Technologies Research Institute

I learned about space technologies mostly covering satellite technologies. Although I was assigned to Big Data Department during my internship, we had the opportunity to learn every aspect of the satellite design, manufacturing and operation cycle. In my department I had the task of writing an algorithm for secure and uncorrupted file transfer from server to client.

08.2018

Production intern at CİMTAS STEEL

I was assigned to Stinger project which was a steel construction mechanism that was made for Allseas company. This device was a key part of their seabed pipelaying ship. I learned about welding processes. I also worked on production of Canakkale Bridge Foundations.

07.2018

R&D intern at ARCELIK (Household appliances company)

I was assigned to solve an issue of wrong assembly of a thermostat that was used in 165 different active model fridges. I solved the issue and made a working prototype. I reported my results to the general manager of the factory and was chosen the best intern at summer internship program and I got an offer to work part-time due to my accomplishments.

Fall 2017

Laboratory Assistant at Koc University Manufacturing and Automation Research Center (M.A.R.C.)

Helped PhD students in their daily research tasks and observed most of the research conducted in the lab. Helped organizing lab equipment and inventory.

Extracurricular Activities:

- Hapi RoboFarming Startup CEO/Co-Founder
 - Robotic farming startup focused on hydroponics farming with harvester robots.
- Captain of First Lego League team at Sisli Terakki
 - Lego robotics competition for middle school and high schools.
- NASA Space Apps challenge
 - Competed with a team on design of habitats for astronauts.
- Junior Achievement Mock Company Vice President
 - Voted to be VP for the mock company for Junior Achievement.
- Offensive Captain in KOC RAMS American Football Team
 - Played for 4 years and offensive captain for 2 years.

Languages:

- Turkish (Native Language)
- English (Full Professional Proficiency)
2020 TOEFL

Total Score: 109 (Reading: 28, Listening: 30, Speaking: 27, Writing: 24)

Software tools and Programming Languages:

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| • Python | • Arduino |
| • Java | • C++ |
| • R | • JMP |
| • C | • Siemens NX |
| • Assembly | • SolidWorks |
| • VHDL | • ANSYS |
| • MATLAB | |
| • ROS | |