

ULUBILGE ULUSOY, PH.D.



Human factors engineer specializing in AI-enabled crew support. Dedicated to designing, evaluating, and advancing human-centered systems in high-risk, high-stakes environments. Skilled in leveraging experimental testing and data-driven insights to optimize performance, safety, and mission success.

CONTACT

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- [Portfolio](#)
- [GitHub Profile](#)
- [LinkedIn Profile](#)
- [Publications](#)

EDUCATION

Ph.D., Astronautical Engineering
University of Southern California (USC)
GPA: 3.90/4.00 • Year: 2025

M.S., Astronautical Engineering
University of Southern California (USC)
GPA: 3.92/4.00 • Year: 2020

B.S., Astronautical Engineering
Istanbul Technical University (ITU)
GPA: 3.70/4.00 • Year: 2018

EXPERTISE

Human Factors Engineering
Human-in-the-Loop Testing
Human System Integration
Human Data
Human Centered AI
Human Robot Interaction
Human Spaceflight Operations
AI Augmented Development

AWARDS & HONORS

Young Pioneer Award, Finalist, IAF (2024)
Best Research Assistant, USC (2022)
Rocket Scientist of the Year, USC (2020)

GRANTS & FELLOWSHIPS

NASA STRI HOME (2021-2025)
USC Viterbi Grad Fellowship (2020-2021)

STACK

Python (OpenCV, ViSP, PyQt)
BIOPAC
Lab Streaming Layer
MATLAB & R
Qualtrics
LaTeX
Open Broadcaster Software

LANGUAGE

English (Fluent)
Turkish (Native)

PROFESSIONAL EXPERIENCE

- 07/2025 - Present** **Postdoctoral Associate**
University of Colorado Boulder
 - Serving as the inaugural Smead Distinguished Postdoctoral Associate in the Department of Aerospace Engineering Sciences.
 - Conducting human factors research in space operations within the Bioastronautics Laboratory as part of Assistant Professor Katya Arquilla's group.
 - Leading an experimental human-robot interaction (HRI) study investigating the utilization of robots to support astronauts during maintenance operations.
 - Designing ecologically valid maintenance scenarios for controlled laboratory experiments.
 - Developing Python-based Lab Streaming Layer (LSL) applications to synchronize physiological and behavioral data streams.
 - Advancing robot-arm capabilities through kinesthetic teaching and computer vision applications to enable real-time, task-relevant interaction during maintenance scenarios.
- 08/2020 - 05/2025** **Research Assistant**
University of Southern California
 - Conducted research in the Astronaut Performance Laboratory within the Department of Astronautical Engineering under the supervision of former NASA astronaut Professor Garrett E. Reisman.
 - Designed and executed two human-AI interaction experiments involving 60+ participants.
 - Conducted a survey study with ten former astronauts to characterize interaction dynamics between astronauts and mission control during maintenance operations, informing human-AI interaction design.
 - Built Python-based GUIs and analytical tools for data collection; performed statistical analysis in MATLAB and R.
 - Performed comprehensive literature reviews on human factors metrics and human spaceflight operational procedures.
 - This role was funded by Habitats Optimized for Missions of Exploration (HOME), a NASA Space Technology Research Institute (STRI).
- 01/2024 - 06/2024** **Capstone Captain**
NASA STRI HOME
 - Co-led the development and execution of a capstone demo simulating deep-space habitat ECLSS maintenance with astronauts, AI, and robotic agents.
 - Coordinated research and engineering efforts among stakeholders, co-developed the operational scenario, and integrated multidisciplinary work into a cohesive demo that met NASA requirements.
- 11/2019 - 11/2020** **Lead Engineer**
USC Liquid Propulsion Laboratory
 - Managed a nonprofit academic propulsion group, leading 40+ students and overseeing an annual budget of approximately \$60k.
 - Assumed leadership of ongoing research initialization on particle shedding in 3D-printed metal rocket engines with The Aerospace Corporation, leading statement-of-work development and coordinating with University Corporate Relations to launch the sponsored research collaboration.
 - Managed end-to-end project execution for the design of a liquid rocket engine test stand in collaboration with Pangea Propulsion, serving as project coordinator overseeing timelines, deliverables, and technical alignment.
 - Implemented industry-aligned organizational and technical operating standards across laboratory activities.
 - Coordinated with USC Environmental Health & Safety (EH&S) to establish testing protocols and COVID-era operational procedures.
 - Defined high-level project goals for the design and testing of rocket engines and feed systems.
 - Negotiated with university administrators to secure additional operational space for the laboratory.