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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LinkedIn Profile
Publications
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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 Interation
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 (LSL)
MATLAB & R
Qualtrics
LaTeX
Open Broadcaster Software (OBS)

LANGUAGE

English (Fluent)
Turkish (Native)

PROFESSIONAL EXPERIENCE

07/2025 - Present
University of Colorado Boulder — Postdoctoral Associate

- 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
University of Southern California — Research Assistant

- 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
NASA STRI HOME — Capstone Captain

- 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
USC Liquid Propulsion Laboratory — Lead Engineer

- 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.