

Undergraduate Research Assistants at the Galileo Project

The Psychology of Scientific Discovery: Uncertainty, Decision Making, and Team Cognition

Center for Astrophysics | Harvard & Smithsonian · Supervisors: Prof. Avi Loeb and Dr. Omer Eldadi

The Galileo Project, led by Prof. Avi Loeb, searches for evidence of extraterrestrial technology using dedicated observatories and the study of interstellar objects. Our psychology group studies the human side of this search: how scientists, teams, and the public reason, communicate, and decide when evidence is uncertain, time is short, and the stakes are high. We are recruiting undergraduates to join active studies and planned papers at the intersection of **psychology and astrophysics**.

LOCATION	COMMITMENT	START	CONTACT
Center for Astrophysics, 60 Garden St., Cambridge	2 to 5 hours per week, one semester minimum	Rolling basis	Dr. Omer Eldadi omer.eldadi@cfa.harvard.edu

RESEARCH AREAS

- 1. How scientists think under uncertainty.** How do expert teams judge anomalous evidence under uncertainty and time pressure? We study this in the transcripts of the 1949 Los Alamos Conference on Aerial Phenomena, in the scientific debate over interstellar objects such as 1I/‘Oumuamua, and in how astronomers will respond to anomalies in upcoming data from the Vera C. Rubin Observatory.
- 2. How UAP and NHI affect society.** Large-scale surveys and experiments examine how the public responds to official UAP releases and to expert consensus about extraterrestrial life. In collaboration with Prof. Daniel Gilbert (Department of Psychology), we test how people would react to an official announcement confirming nonhuman intelligence. The experiment applies Fiske’s stereotype content model, which holds that people judge any other group on two dimensions: warmth and competence. The experiment varies whether the civilization seems cooperative or competitive (warmth), how advanced its technology is (competence), and whether officials admit uncertainty. Participants forecast their fear and hope a week, a month and a year later, and report how much they trust the announcement.
- 3. Astronaut communication.** Analyzing all 13,114 statements of the Apollo 11 mission (*Scientific Reports*), we found that the astronauts expressed uncertainty twice as often in private crew-to-crew communication as with Mission Control, and negative emotion four times as often, even during the life-threatening lunar landing. Students will help extend this analysis to all 11 crewed Apollo missions and, ultimately, to every crewed spaceflight.
- 4. Sport and performance psychology.** How do athletes and working teams make decisions, coordinate, and perform under pressure? We study communication, emotion, emotional contagion, and decision making in high-stakes teams, from elite sport and esports to professional work settings, including a cross-cultural study.
- 5. Integrative team cognition.** A unified model of how communication, shared cognition, and collective decision making shape team performance across sport, esports, aviation emergencies such as US Airways Flight 1549, and spaceflight.
- 6. Grant writing.** Students also take part in writing the grant proposals that fund this work, an experience rarely available to undergraduates.

WHAT YOU WILL GAIN

Hands-on training in communication and content analysis, survey design, and data analysis (R, Python, or SPSS); regular one-on-one mentoring; and membership in an interdisciplinary team of psychologists and astrophysicists. Students who make substantial contributions will be eligible for co-authorship on resulting publications.

WHO SHOULD APPLY

Harvard undergraduates in Psychology who are curious, reliable, and careful with detail. No prior research experience is required; statistics or programming experience is a plus.

SUPERVISORS

Prof. Abraham (Avi) Loeb is chair of the UAP Science Advisory Council to the White House, Pentagon, FBI and intelligence agencies, director of the Galileo Project, founding director of Harvard University’s Black Hole Initiative, former director of the Institute for Theory and Computation at the Harvard-Smithsonian Center for Astrophysics, and the former chair of the astronomy department at Harvard University (2011–2020). He is a former member of the President’s Council of Advisors on Science and Technology and a former chair of the Board on Physics and Astronomy of the National Academies. He is the bestselling author of “Extraterrestrial: The First Sign of Intelligent Life Beyond Earth” and a co-author of the

textbook “Life in the Cosmos”, both published in 2021. The paperback edition of his latest book, titled “Interstellar”, was published in 2024.

Dr. Omer Eldadi is a social psychologist and a Fulbright Postdoctoral Fellow at the Center for Astrophysics. His research on team cognition, communication, and decision making under uncertainty appears in journals such as *Psychology of Sport and Exercise*, *Journal of Sport and Exercise Psychology*, and *Scientific Reports*. He is a member of the UAP Science Advisory Council.

HOW TO APPLY

Email Dr. Omer Eldadi at omer.eldadi@cfa.harvard.edu with the subject line “Galileo Project Research Assistant”. Attach your CV or resume and a brief statement of interest (3–4 sentences) naming the research area(s) that interest you most.