John A. Karasinski, Ph.D.

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Professional Summary

A Human Factors Researcher with a Ph.D. in Aerospace Engineering, specializing in ensuring astronaut safety and mission success for next-generation spacecraft. Expertise in translating technical requirements into intuitive crew-facing systems. Proven ability to lead human-in-the-loop research and develop interfaces for long-duration spaceflight.

Experience

- **NASA Ames Research Center** **Moffett Field, CA**
  AST, Technical Management *August 2023 – Current*
  Research AST, Human/Machine Systems *September 2020 – June 2022*
  NASA Pathways Intern *August 2017 – September 2020*
  Research Intern (*Contractor via SJSU Research Foundation*) *June 2016 – August 2017*
  - Lead human factors research and technology development to define human-system requirements for future deep space missions within the Human Research Program and Mars Campaign Office.
  - Selected to the NASA Ames Institutional Review Board (IRB), reviewing human-subject research protocols to ensure ethical conduct and the protection of participant rights and welfare (*Designated Reviewer, 2025 – Present; Board Member, 2023 – 2025*).
  - Appointed as a Human Factors expert to the Human Occupancy Review Board (HORB), the standing safety board that evaluates and certifies the readiness of all test facilities prior to human occupancy.
  - Provide Human Health and Performance (HH&P) insight for commercial partners (e.g., SpaceX, Blue Origin) to ensure Human Landing System (HLS) designs meet NASA's safety and usability standards.
  - Conducted foundational research in human-computer interaction and human-automation integration, designing and building functional prototypes to demonstrate novel human-system capabilities.
  - Contribute to research and development of Playbook, a mission-critical planning and execution tool that supports crew operations for analog missions (HERA, CHAPEA) and lunar payload deliveries (CLPS).

- **Blue Origin** **Kent, WA**
  Human Factors Engineer III *June 2022 – August 2023*
  - Served as the responsible engineer for Blue Origin's Operational Displays Standard, a set of guidelines applied across all company program user interfaces (New Shepard, New Glenn, Blue Moon, Orbital Reef, etc.).
  - Authored, evaluated, and verified human factors (HF) requirements for human-rated spacecraft, directly enhancing astronaut safety, comfort, and mission experience.
  - Conducted comprehensive HF analyses, including task and human error analysis, to proactively identify and mitigate risks in crew procedures and system interfaces.
  - Designed and executed high-fidelity HITL tests with astronaut-facing hardware to validate crew systems and inform design iterations.

- **UC Davis Center for Human/Robotics/Vehicle Integration and Performance** **Davis, CA**
  Senior Researcher *June 2020 – June 2022*
  Graduate Student Researcher *November 2013 – June 2020*
  - Developed and validated novel methods for the real-time assessment of operator performance, providing a foundation for adaptive training systems for long-duration spaceflight.
  - Engineered complex, high-fidelity simulations to analyze human-automation interaction and performance, supporting multiple human-subject research campaigns.
  - Researched and applied computer-vision techniques for autonomous spacecraft rendezvous and docking, and utilized optimal control theory for spacecraft attitude pointing.

- **Foodfully, Inc.** **Davis, CA**
  Lead Software Developer *2015 – 2018*
  - Led full-stack development (JavaScript, Meteor, MongoDB, React) for a consumer-facing application suite designed to reduce household food waste.

- **Teachers Curriculum Institute** **Mountain View, CA**
  Software Developer *2013 – 2015*
  - Developed interactive K-12 science curriculum and a comprehensive educational software suite.

- **Handstand Inc.** **Mountain View, CA**
  Content Administrator *2011 – 2012*
  - Managed a team of 5 to build and curate a digital library of over 2,000 open-source STEM textbooks, achieving over 2 million views.
- **University of California, Santa Cruz** **Santa Cruz, CA**
  Undergraduate Student Researcher *2009 – 2013*
  - Conducted high-energy gamma-ray timing analysis using data from the Fermi Gamma Ray Telescope for a senior thesis investigating potential signatures of dark matter.

Education

- **University of California, Davis** **Davis, CA**
  Ph.D. Mechanical and Aerospace Engineering *2016 – 2020*
  Dissertation: Concurrent Bandwidth Feedback for Complex Manual Control Tasks
  M.S. Mechanical and Aerospace Engineering *2013 – 2016*
  Thesis: Real-Time Performance Feedback for the Manual Control of Spacecraft
- **University of California, Santa Cruz** **Santa Cruz, CA**
  B.S. Physics *2008 – 2012*
  Thesis: A High Energy Timing Analysis with the Fermi Gamma-Ray Telescope

Technical Skills

Core Languages: Python, Typescript/Javascript, R, C#
Human Factors: Human-in-the-Loop (HITL) Simulation, Systems Safety & Human Error Analysis, Human-Automation Integration, UX Research, Human-Centered Design, Mixed Model Statistical Analysis
Frameworks & Engineering Tools: React, MongoDB, Unity, MATLAB, Simulink, Ruby on Rails, LaTeX, FORTRAN, C++

Selected Publications

Karasinski, John, Shivang Shelat, and Jessica Marquez. Validation of Self-Scheduling Countermeasures in NASA's HERA Campaign 6. In *AIAA SCITECH 2025 Forum*, page 2092, 2025. doi:10.2514/6.2025-2092.

Renee Abbott, **Karasinski, John A.**, and Jessica J. Marquez. Characterizing Spontaneous Self-Scheduling in NASA's Human Exploration Research Analog Campaign 6. In *46th International IEEE Aerospace Conference*, 2025. URL `https://ntrs.nasa.gov/citations/20250001447`.

Karasinski, John A., Lauren B. Landon, Megan E. Parisi, Katie R. McTigue, Shu-Chieh Wu, Linda G. Morissette, and Tina L. Panontin. Assessment of the State of Communication Delay Research in Preparation for Missions Beyond Low Earth Orbit. In *2025 Human Research Program Investigators' Workshop*, 2025. URL `https://ntrs.nasa.gov/citations/20250000703`.

Karasinski, John A., Megan C. Shyr, Andrew Torr, and Jessica J. Marquez. Exploring Self-Scheduling Strategies and Heuristics in Novice Schedulers. In *AIAA SCITECH 2023 Forum*, page 1067, 2023. doi:10.2514/6.2023-1067.

Jessica J. Marquez, Tamsyn Edwards, **Karasinski, John A.**, Candice N. Lee, Megan C. Shyr, Casey L. Miller, and Summer L. Brandt. Human Performance of Novice Schedulers for Complex Spaceflight Operations Timelines. *Human Factors*, 65(6): 1183–1198, 2023. doi:10.1177/00187208211058913.

Aleksandra S. Stankovic, Alyssa Pryputniewicz, Sherrie Holder, Stephen P. York, Patrick M. Handley, **Karasinski, John A.**, Stephen K. Robinson, John J. West, and Kevin R. Duda. Longitudinal Impacts of Simulated Long-Duration Spaceflight Missions on Operationally Relevant Measures of Human Performance Using a Portable Simulation Platform. *Human Factors*, 65(6):1130–1141, 2023. doi:10.1177/00187208221113629.

Shivang Shelat, **Karasinski, John A.**, Erin E. Flynn-Evans, and Jessica J. Marquez. Evaluation of User Experience of Self-scheduling Software for Astronauts: Defining a Satisfaction Baseline. In *International Conference on Human-Computer Interaction*, pages 433–445, 2022. doi:10.1007/978-3-031-06086-1_34.

Karasinski, John A., Isabel C. Torron Valverde, Holly L. Brosnahan, Jack W. Gale, Ron Kim, Melodie Yashar, and Jessica J. Marquez. Designing Procedure Execution Tools with Emerging Technologies for Future Astronauts. *Applied Sciences*, 11 (4), 2021. doi:10.3390/app11041607.

Karasinski, John A., Richard Joyce, Colleen Carroll, Jack Gale, and Steven Hillenius. An Augmented Reality/Internet of Things Prototype for Just-in-time Astronaut Training. In *Virtual, Augmented and Mixed Reality*, pages 248–260, Cham, 2017. Springer International Publishing. doi:10.1007/978-3-319-57987-0_20.