

John Karasinski, Ph.D.

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Education

- **University of California, Davis** **Davis, CA**
2016 – 2020
Ph.D. Mechanical and Aerospace Engineering
 - Human systems integration and control theory*M.S. Mechanical and Aerospace Engineering* 2013 – 2016
 - Real-time performance feedback for the manual control of spacecraft
 - **University of California, Santa Cruz** **Santa Cruz, CA**
2008 – 2012
B.S. Physics
 - High-energy astroparticle physics with the Fermi Gamma-ray Telescope
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Experience

- **NASA Ames Research Center** **Moffett Field, CA**
September 2020 – Current
August 2017 – 2020
Research AST, Human/Machine Systems
NASA Pathways Intern
 - Human factors and human performance within the Human Systems Integration Division
 - NESC Mars Crew Size human performance modeling, HLS contract insight
 - Scheduling and planning tool development, design, and research with Playbook
 - Software development with Javascript, node, Python, Unity, and C#
- **UC Davis Center for Human/Robotics/Vehicle Integration and Performance** **Davis, CA**
May 2020 – Current
November 2013 – 2020
Senior Researcher
Graduate Student Researcher
 - Development and validation of methods to assess task performance in real-time and provide immediate feedback to improve mission outcomes for spaceflight operations
 - Customized refresher and just-in-time training for long-duration spaceflight crews
 - Simulation development for the analysis of human performance and human-automation interaction
 - Multiple human subject research campaigns
 - Computer-vision techniques for autonomous spacecraft rendezvous and docking
 - Optimal control theory for spacecraft attitude pointing
- **San José State University Research Foundation** **Moffett Field, CA**
June 2016 – August 2017
Research Intern
 - Designed and built a prototype of a mobile procedure viewer with the goals of reducing execution time, training time, and procedure execution errors for astronauts on the International Space Station
 - Directed design interns on prototyping, usability testing, analysis and feasibility tasks
 - Mentored software development interns learning Arduino, node, and Unity to accomplish tasks
 - Integrated HoloLens augmented reality display and ESP8266 hardware through a MQTT broker
 - Software development with Unity, node, and C++
- **Foodfully, Inc.** **Davis, CA**
2015-2018
Lead Software Developer
 - Development of web, iOS, and Android mobile apps to reduce household food waste
 - Full-stack software development in Javascript, Meteor, MongoDB, and React
- **Teachers Curriculum Institute** **Mountain View, CA**
2013-2015
Software Developer
 - Development of interactive science curriculum, comprehensive educational suite, and online store
 - Software development in JavaScript, HTML5, and Ruby on Rails

• **Handstand Inc.**
Content Administrator

Mountain View, CA
2011 – 2012

- Curated and published a library of over 2,000 creative commons and open source textbooks for free use (over 2 million views as of January 2017, see https://archive.org/details/opensource_textbooks)
- Assisted with the design, creation, and quality assurance of both the mobile and web applications
- Selected science, technology, engineering, and mathematics (STEM) textbooks for use with Android education application
- Effectively managed small teams of 3-7 people to complete various start up projects

• **University of California, Santa Cruz**
Undergraduate Student Researcher

Santa Cruz, CA
2010 – 2012

- Search for ‘smoking gun’ signatures of dark matter in the galactic center
- High energy gamma-ray timing analyses with the Fermi Gamma Ray Telescope

Junior Specialist

2009 – 2010, Balloon Campaigns 2011-13

- Computer-aided testing and evaluation of hardware and software for use on both test and final BARREL (Balloon Array for RBSP Relativistic Electron Losses) balloon campaigns
- Monitored data acquisition and performance of balloons during multiple campaigns to determine the electron loss rate during RBSP relativistic electron events

Selected Publications

Karasinski, John, Sherrie Holder, Stephen Robinson, and Jessica Marquez. Deep Space Human-Systems Research Recommendations for Future Human-Automation/Robotic Integration. 2020.

Lily Wong, Sean Pradhan, **Karasinski, John**, Cindy Hu, Gary Strangman, Vladimir Ivkovic, Lucia Arsintescu, and Erin Flynn-Evans. Performance on the Robotics On-Board Trainer (ROBoT-r) Spaceflight Simulation During Acute Sleep Deprivation. *Frontiers in Neuroscience*, 14:697, 2020.

Sarah M. O’Meara, **John A. Karasinski**, Casey L. Miller, Sanjay Joshi, and Stephen K. Robinson. The Effects of Training Methodology on Performance, Workload, and Trust During Human Learning of a Computer-Based Task. In *AIAA Scitech Forum*, 2020. doi:[10.2514/6.2020-1110](https://doi.org/10.2514/6.2020-1110).

John A. Karasinski and Stephen K. Robinson. Utility of Concurrent Bandwidth Feedback in Training Aircraft Flight Tasks. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 63(1):1729–1733, 2019a. doi:[10.1177/1071181319631097](https://doi.org/10.1177/1071181319631097).

John A. Karasinski and Stephen K. Robinson. Evaluating Augmented Reality in a Three-Axis Manual Tracking Task. In *AIAA SciTech Forum*, 2019b. doi:[10.2514/6.2019-1227](https://doi.org/10.2514/6.2019-1227).

Jack Gale, **Karasinski, John**, and Steve Hillenius. Playbook for UAS: UX of Goal-Oriented Planning and Execution. In *Engineering Psychology and Cognitive Ergonomics*, pages 545–557. Springer International Publishing, 2018. ISBN 978-3-319-91122-9. doi:[10.1007/978-3-319-91122-9_44](https://doi.org/10.1007/978-3-319-91122-9_44).

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. ISBN 978-3-319-57987-0. doi:[10.1007/978-3-319-57987-0_20](https://doi.org/10.1007/978-3-319-57987-0_20).

John A. Karasinski, Stephen K. Robinson, Patrick Handley, and Kevin R. Duda. Real-Time Performance Feedback in a Manually-Controlled Spacecraft Inspection Task. In *AIAA Modeling and Simulation Technologies Conference*, 2017. doi:[10.2514/6.2017-1314](https://doi.org/10.2514/6.2017-1314).

Karasinski, John A., Stephen K. Robinson, Kevin R. Duda, and Zahar Prasov. Development of real-time performance metrics for manually-guided spacecraft operations. In *IEEE Aerospace Conference*, pages 1–9. IEEE, 2016. doi:[10.1109/AERO.2016.7500734](https://doi.org/10.1109/AERO.2016.7500734).

Core Technical Skills

Core Languages: Python, Javascript

Additional Languages: C#, FORTRAN, C++, MATLAB, Simulink, L^AT_EX, jQuery, Ruby on Rails, HTML5, CSS3

Development Environments: Linux, macOS, Windows, Android, iOS