John Karasinski, Ph.D.

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Education

- **University of California, Davis** — **Davis, CA**
  Ph.D. Mechanical and Aerospace Engineering — *2016 – 2020*
  - Concurrent Bandwidth Feedback for Complex Manual Control Tasks

  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**
  B.S. Physics — *2008 – 2012*
  - High-energy astroparticle physics with the Fermi Gamma-ray Telescope

Experience

- **NASA Ames Research Center** — **Moffett Field, CA**
  Research AST, Human/Machine Systems — *September 2020 – Current*
  NASA Pathways Intern — *August 2017 – 2020*
  - 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**
  Senior Researcher — *May 2020 – Current*
  Graduate Student Researcher — *November 2013 – 2020*
  - 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**
  Research Intern — *June 2016 – August 2017*
  - 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**
  Lead Software Developer — *2015-2018*
  - 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**
  Software Developer — *2013-2015*
  - Development of interactive science curriculum, comprehensive educational suite, and online store
  - Software development in JavaScript, HTML5, and Ruby on Rails

- **Handstand Inc.** **Mountain View, CA**
  Content Administrator *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** **Santa Cruz, CA**
  Undergraduate Student Researcher *2010 – 2012*
  Junior Specialist *2009 – 2010, Balloon Campaigns 2011-13*
  - Search for 'smoking gun' signatures of dark matter in the galactic center
  - High energy gamma-ray timing analyses with the Fermi Gamma Ray Telescope
  - 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

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Selected Publications

Sarah M. O'Meara, **Karasinski, John A.**, Casey L. Miller, Sanjay S. Joshi, and Stephen K. Robinson. Effects of augmented feedback and motor learning adaptation on human–automation interaction factors. *Journal of Aerospace Information Systems*, 18(6):377–390, 2021. doi:10.2514/1.I010915.

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. ISSN 2076-3417. doi:10.3390/app11041607.

Karasinski, John, Sherrie Holder, Stephen Robinson, and Jessica Marquez. Deep Space Human-Systems Research Recommendations for Future Human-Automation/Robotic Integration. 2020. URL https://ntrs.nasa.gov/citations/20205004361.

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.

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.

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.

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.

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.

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.

Core Technical Skills

Core Languages: Python, Javascript
Additional Languages: C#, FORTRAN, C++, R, MATLAB, Simulink, LaTeX, jQuery, Ruby on Rails, HTML5, CSS3
Development Environments: Linux, macOS, Windows, Android, iOS