

MICHAEL A. CARNEY

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RESEARCH INTERESTS

Human-Centered Simulation Design; Predictive Fire Simulation & Risk Modeling; High-Risk Operational Training Environments; Air Quality Sensing & Environmental Monitoring; Digital Twin Methodologies for Operational Analysis; Drone & LiDAR-Based Spatial Capture; AI-Driven Adaptive Instruction in Simulation; Autonomous System Integration in Logistics and Supply Networks.

EDUCATION

M.S. Modeling & Simulation — University of Central Florida 2010
B.A. Digital Media - Internet & Interactive Systems — University of Central Florida 2007

CERTIFICATIONS

- Engineering Technology: AutoCAD Professional - Tulsa Community College. Issued Jan 2026.
- Certified SOLIDWORKS Associate (CSWA) - Dassault Systèmes. Issued Dec 2025. Credential ID C-CEGKMZL5TR.
- Foundations of User Experience (UX) Design - Google. Issued Jul 2023. Credential ID GBLT2GG4GFAV.
- Human Subjects Research, Social/Behavioral Research Investigators and Key Personnel - CITI Program. Issued Dec 2024. Credential ID 31846894.
- Unity Certified Developer - Unity. Credential ID 20167UCD835.

APPOINTMENTS

University of Central Florida, Institute for Simulation & Training, Orlando, FL 2016 - Present
Senior Experience Designer

- Designed operator interfaces for oil industry and microchip factory digital twins.
- Architected a DARPA-sponsored geospatial population modeling system in Cesium.
- Contributed to federal proposals and briefed government sponsors.

Canon U.S.A., Inc., Melville, NY 2014 - 2016
Mixed Reality Visualization Consultant

- Designed spatial interactions for aerospace, automotive, and architecture.
- Supported RFP responses and integration for Embraer.
- Conducted field research and usability studies.

University of Central Florida, Institute for Simulation & Training, Orlando, FL 2011 - 2014
Research Faculty

- Led VR Incident Commander training simulator for Orange County Fire Rescue.
- Designed VR/AR/MR training environments; co-PI on funded research.
- Designed military training simulations; conducted field interviews.

Orlando Science Center

Advisory Board Member, Otronicon

- Served on the advisory board for Otronicon, the Orlando Science Center's annual celebration of interactive technology, video games, and STEM career exposure, featuring military and medical simulators alongside industry-led workshops and panels.

RESEARCH PROJECTS

- Micro-electronics Digital Twin (MeDT). Economic Development Agency (EDA). 2022 - 2026.
- Silicon Pathways: Virtual Fab for Reskilling and Upskilling. Florida Semiconductor Engine / NSF. 2024 - ongoing.
- Schlumberger Downhole Tools Simulation Pilot: Creating a Simulation-based Blended Learning System (SBBLs). Schlumberger Technology Corporation. 2015 - 2026.
- Transforming Next Generation Emergency Response. Department of Homeland Security NGFR Program. 2016 - 2019.
- Schlumberger - Tarr Master Agreement. Schlumberger Technology Corporation. Ends 12-2028.
- Soldier Perception Laboratory. US Army Research Laboratory. Ends 06-2021.
- Lightning. Kentucky Science Center. Ends 12-2020.
- AR Enhancement of Technical Posters. Sandia National Laboratories. Ends 06-2020.
- Schlumberger Service Order 6 (SO6): Core UCF Analysis, Planning and Concept Activities. Schlumberger Technology Corporation. Ends 12-2018.
- A Novel Pregnancy Prevention Intervention for Latino Middle School Girls. National Institutes for Health NINR, subaward from University of Miami. 6/2012 - 6/2019.
- Metaphor-Based Learning of Physics Concepts through Whole-Body Interaction in a Mixed Reality Science Center Exhibit. National Science Foundation AISL, subaward from UIUC. 9/2011 - 2/2017.
- Glucose Simulator Pilot. Internal funding. 2014 - 2016.
- Production of Animated Videos for Autism Research. University of Florida. Ends 02-2014.
- Connected Garden. ADL. 6/2013 - 3/2014.
- Incident Command Training. Orange County Fire Rescue / FEMA. 6/2012 - 8/2013.
- Water's Journey through the Everglades. National Science Foundation. 7/2007 - 7/2012.
- Space, Science and Spirituality. Templeton Foundation. 9/2011 - 6/2012.
- LEAP Phase I. Simiosys. Ends 04-2011.

PUBLICATIONS

- Sonnenfeld, N. A., Nguyen, B., Duruaku, F., Alonso, A., Carney, M., Smith, E., & Jentsch, F. (2023). **Flightcrew procedures experimental training: Simulation testbed design, development, & interactive demonstration.** *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 67(1), 253-258.
- Smith, E., Tarr, R., Fidopiastis, C., Carney, M., Lackey, S., & Shumaker, R. (2015). **Working the modes: Understanding the value of multiple modalities of technologies for learning and training success.** *Virtual, Augmented and Mixed Reality*, 9179, 321-328.
- Smith, E., Carney, M., & Cavendish, K. (2013, May/June). **Applying simulations to social learning experiences.** *ASTC Dimensions*, 48-50.
- Smith, E., Bockelman, P., Carney, M., & Fidopiastis, C. (2019). **Imagining a future of symbiotic human interaction with technology** [Tutorial workshop]. HCII 2019, Orlando, FL.
- Smith, E., Bockelman, P., Carney, M., & Fidopiastis, C. (2017, July). **Designing for operational environments: Interactive training using multimodal technologies** [Tutorial workshop]. HCII 2017, Vancouver, Canada.
- Smith, E., Tarr, R., Carney, M., & Fidopiastis, C. (2016, July). **Design of training programs using multiple modalities of technologies** [Tutorial workshop]. HCII 2016, Toronto, Canada.

CONFERENCE PRESENTATIONS

- Tarr, R., Smith, E., Totten, E., Carney, M., & Wajda, M. (2014, December). **Utilizing simulation and game-based learning to enhance incident commander training.** Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC), Orlando, FL.
- Smith, E., Tarr, R., Fidopiastis, C., & Carney, M. (2015). **Working the modes: Understanding the value of multiple modalities of technologies for learning and training success.** HCII 2015, Los Angeles, CA.
- Haddad, S. (Design Interactive Inc), & Carney, M. (Canon). (2015, June). **Designing for training.** Augmented World Expo (AWE), Santa Clara, CA.

TEACHING & MENTORSHIP

- Founded and ran a highly selective undergraduate internship program (accepting less than half of applicants), pairing UCF students with faculty and community partners on creative project development resulting in portfolio-level deliverables.
- Partnered with national organizations such as Canon USA to provide interns with substantive career-building experiences.

HONORS & AWARDS

- 2025. I/ITSEC Serious Games Showcase & Challenge - Finalist. **Microchip Mayhem.**
- 2020. NIST CHARIoT Challenge. **Top Incident Command Interface (Active Shooter Scenario).**
- 2020. NIST CHARIoT Challenge. **Top First Responder Interface (Active Shooter Scenario).**
- 2019. George Kaiser Family Foundation - Inaugural Cohort. **Tulsa Remote.**

LANGUAGES

- English (native)
- Spanish (in progress)

MEMBERSHIPS & AFFILIATIONS

- Human-Computer Interaction International (HCII)
- ACM SIGGRAPH
- Autodesk User Group International (AUGI)