

Johns Hopkins Institute for Assured Autonomy
and the Department of Computer Science

Present

Human-Centered Autonomy for Resilient Space Systems



Dr. Greg Falco

Johns Hopkins Institute for
Assured Autonomy
Assistant Research Professor

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ABSTRACT

Sustained space habitation is no longer a next-generation challenge. With NASA's Artemis Plan, the advent of the US Space Force and the "new space" sector's scrappy enthusiasm, there is serious momentum to bring humans to space for extended periods in the coming decade. We can't do this alone. We'll need to adapt the highly automated systems we've been designing for everyday purposes to help us survive. However, if we build space-faring AI systems anything like how we have been building smart cities, we are going to have some problems. AI systems that have been designed for civil society are not built for digital or physical resilience. Largely, they have lacked human-centricity, which has been a major contributor to this challenge. At this talk, we'll discuss and raise questions about the calls for autonomous space systems, and if we do not have a track record for building safe and secure human-centric AI systems on Earth, how can we build them for space? The stakes are higher there.

BIO

Prof. Gregory Falco is the first faculty hire at the Johns Hopkins Institute for Assured Autonomy (IAA), where he will be an Assistant Professor jointly between the IAA and the Civil and Systems Engineering Department starting in Fall 2021. He has been at the forefront of smart city and space system security and safety in both industry and academia for the past decade. His research entitled Cybersecurity Principles for Space Systems was highly influential in the recent Space Policy Directive-5, which shared the same title. He has worked closely with NASA's Jet Propulsion Laboratory to help advance space asset security capabilities using AI. Falco led the inaugural university cohort research team for the United States Space Force's Hyperspace Challenge. He has been listed in Forbes 30 Under 30 for his inventions and contributions to critical infrastructure cyber security. Falco has been published in Science for his work on cyber risk. Falco is a Cyber Research Fellow at Harvard University's Belfer Center, Research Affiliate at MIT's Computer Science and Artificial Intelligence Laboratory and Postdoctoral Scholar at Stanford University. Falco completed his PhD at MIT's Computer Science and Artificial Intelligence Laboratory, master's degree at Columbia University and bachelor's degree at Cornell University.

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Johns Hopkins University

3400 N. Charles Street
Baltimore, MD 21218

HOW TO REACH US

IAA Email: IAAinfo@jhu.edu

Website: iaa.jhu.edu

CS Email: contactus@cs.jhu.edu

Website: cs.jhu.edu



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