



American Institute of Aeronautics and Astronautics

St. Louis Section

Tuesday, November 14, 2023

Boeing Bldg. 100 Café

6300 James S. McDonnell Blvd

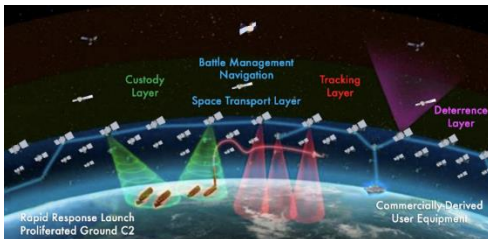
Berkeley, MO 63134

In-person & virtual options available

The Internet Ruins Everything:

Explaining the Six Ages of Small Satellites

Presented by Dr. Michael Swartwout, Professor of Aerospace & Mechanical Engineering,
Saint Louis University.



The year 2020 marked the start of the Sixth Age of Smallsats. One might ask, "Sixth age? What happened to the first five? Also: small *what*?" That's why we need this presentation! "Smallsat" is a design ethos, not a size classification. One may call it a constraint-driven approach to space mission design, rather than a traditional requirements-driven approach. Smallsats may be associated with rideshare/secondary launches, but their distinctive feature is a program-level willing-

ness to aggressively trade mission performance to meet cost and schedule. I will review the five previous ages of Smallsats, showing each age had a distinct set of missions, risk profiles and external opinions of small satellites. We distinguish between ages to help understand how to pursue Smallsat missions in our present age. Specifically, I show mission success is strongly correlated with particular design practices and organization types, which have shifted over time.

Mike Swartwout is a Professor of Aerospace Engineering at Saint Louis University, where he studies spacecraft autonomy and mission assurance for small satellites. He started down this path as a graduate student at Stanford, where he was program manager for the Sapphire satellite that launched in 2001 with one of the most advanced autonomy systems flown to date. (Don't get excited; that was a very, very, low bar to cross.) At SLU, he has guided three student-built space missions to orbit, with a fourth to launch in 2024 and a fifth in development. In 1988, he attended the first official night game at Wrigley Field but came to his senses in 2003 and now openly roots for the Cardinals.

Schedule

5:00 – 5:30 Sign-in / social

5:30 – 6:30 Presentation

6:30 – 7:00 Q&A

Menu

Sandwiches and
Light Refreshments

Ticket Price

Free

RSVP by November 10 using our Jotform

<https://form.jotform.com/233026391238150>

Contact [Alex Ambro](#) for questions

