SIMON C. PATANÉ

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EDUCATION

University of Michigan, Ann Arbor — *December 2016*
M.Eng in Space Engineering

Vassar College — *May 2015*
B.A. in Physics & Astronomy
Minor in International Politics

TECHNICAL SKILLS

General Software	Adobe Illustrator, LaTeX
Tools	Jama, Enterprise Architect, SPENVIS, SRIM, STK/GMAT, Python, Windchill
Expertise	In-space servicing, in-space assembly, in-space manufacturing, robotics, ISRU

PROFESIONAL EXPERIENCE

Redwire Space — June 2020 - Present
Systems Engineer III — *Jacksonville, FL*

- Subject matter expert in In-space Servicing, Assembly, and Manufacturing (ISAM)
- Frequently contributes ISAM expertise to new technology development, bid & proposal efforts
- Systems engineer for OSAM-2 and Mason (Tipping Point), with responsibilities including:
  - Interface definition and control (i.e. generating and revising ICDs, MICDs)
  - Requirements management and development
  - Maturation of Concept of Operations (ConOps) and system architecture from stakeholder inputs
  - Verification & Validation (V&V) planning for both payloads and integrated spacecraft
  - Produce and deliver milestone gate reviews to the customer
  - Author mission concept & operations plans, including launch and ground segment architecture
  - Maintained risk & opportunity database per NASA-specified technical and programmatic risk management best practices
- Contributes daily to Jama database for requirements management and verification planning
- Identifies risks & opportunities for technical and programmatic risk assessments

Made In Space, Inc. (Redwire Space, June 2020 onward) — July 2019 - October 2022
Archinaut Systems Lead — *Jacksonville, FL*

- Coordinated system engineering technical execution for the OSAM-2 mission through AI&T
- Tasked cohort of 4-5 systems engineers to ensure full oversight of satellite design team
- Lead multi-phase ISAM design reference mission & ConOps development from project inception
- Facilitated OSAM-2 requirements maturation and iteration based upon stakeholder objectives
- Planned out V&V activities for OSAM-2 spacecraft and constituent subsystems
- Supported Assembly, Integration & Test (AI&T) Lead to ensure coordinated verification planning
- Coordinated systems engineering efforts between Archinaut One subcontractors to ensure complete traceability from customer programmatic requirements down and through to all OSAM-2 subsystems

Made In Space, Inc. January 2017 - July 2019
Systems Engineer *Moffett Field, CA*

- Performed all systems engineering efforts for the Archinaut Technology Development Project (Phase I)
- Developed system requirements and mission architecture for Archinaut suite of technologies
- Coordinated trade studies to inform requirements and ConOps development
- Maintained documentation version control as Archinaut Configuration Manager
- Authored clear and concise technical documentation for multiple projects
- Prepared milestone reviews in compliance with project requirements and contract deliverables
- Developed test plans and procedures for multiple projects' V&V efforts, including two ground test campaigns for Archinaut Phase I
- Championed TRL-advancement of bleeding-edge In-Space Robotic Manufacturing and Assembly (IRMA) technology
- Contributed to successful technical proposals, including the $73.7 million OSAM-2 proposal and numerous NASA and DARPA SBIRs proposals

Made In Space, Inc. May 2016 - August 2016
Engineering Intern *Moffett Field, CA*

- Implemented MBSE workflow for requirements and ConOps development using Sparx Enterprise Architect
- Wrote test plans for project V&V purposes
- Conducted materials testing for experimental additive manufacturing systems
- Created numerical heat transfer model using Octave

University of Michigan, Ann Arbor January 2016 - May 2016
Program Manager, Optimus Student Project *Ann Arbor, MI*

- Responsible for overall project organization and final deliverables
- Oversaw mission architecture development for 3D-printed Cubesat mission
- Performed mission cost and schedule analysis to inform and track engineering budgets

University of Michigan, Ann Arbor September 2015 - December 2015
Lead Radiation Engineer, Optimus Student Project *Ann Arbor, MI*

- Responsible for radiation analysis for 3D-printed cubesat project
- Utilized SRIM and SPENVIS to calculate radiation environment during transit to GEO
- Assisted with mission architecture analysis to verify spacecraft requirements

CONFERENCES & WORKSHOPS

- Session Chair for "Out of Earth Manufacturing - II" at 1st International Conference on Additive Manufacturing for Air, Space, and Land Transportation, March 8 2022.
- Panelist for "Out of Earth Manufacturing - I" at 1st International Conference on Additive Manufacturing for Air, Space, and Land Transportation, March 8 2022.
- NSMMS CRASTE 2019. *Archinaut: A Path to Flight Demonstration*
- Invited talk, American Association of Physics Teachers, Winter 2015 Meeting. *A Teacher's Guide to the History of African-Americans in Physics and Astronomy*
- URSI Symposium, October 2012. *Exploring Particle Physics in Science Literature*

PUBLICATIONS

Juli Lawless, Simon Patané, Rylee Rollins, Mitchel Ledbetter and Ryan Cook. "Future ISAM Architectures for National Security Space," AIAA 2022-4299. ASCEND 2022. October 2022. https://doi.org/10.2514/6.2022-4299

Kari Abromitis, Simon C. Patané, German Acosta Quiros, Daniel Hillsberry, Al Tadros, Justin Kugler. "Design for ISAM: Mission Architectures for Sustainable Exploration and Development," IAC 2021. September 2022.

Simon Patané, Kari Abromitis, German Acosta Quiros, Paul Shestople, Dash Kieler and Michael P. Snyder. "On-orbit Servicing, Assembly, and Manufacturing (OSAM) Enhancing Climate Research," AIAA 2021-4189. ASCEND 2021. November 2021. https://doi.org/10.2514/6.2021-4189

Gerard T. van Belle, Dan Hillsberry, John Kloske, Justin Kugler, Simon Patané, Noah Paul-Gin, Jessica Piness, Daniel Riley, Jack Schomer, Mike Snyder, Thorin Tobiassen. "Optimast structurally connected interferometry enabled by in-space robotic manufacturing and assembly", Proc. SPIE 11446, Optical and Infrared Interferometry and Imaging VII, 114462K (13 December 2020); https://doi.org/10.1117/12.2563084

John J. Schomer, Michael Snyder, and Simon Patané. "Development Path for In-Space Additive Manufacturing," 2018 AIAA SPACE and Astronautics Forum and Exposition, AIAA SPACE Forum, (AIAA 2018-5187)

Simon Patané, John Schomer, and Michael Snyder. "Design Reference Missions for Archinaut: A Roadmap for In-Space Robotic Manufacturing and Assembly," 2018 AIAA SPACE and Astronautics Forum and Exposition, AIAA SPACE Forum, (AIAA 2018-5188)

Simon Patané, Eric R. Joyce, Michael P. Snyder, and Paul Shestople. "Archinaut: In-Space Manufacturing and Assembly for Next-Generation Space Habitats," AIAA SPACE and Astronautics Forum and Exposition, AIAA SPACE Forum, (AIAA 2017-5227)

Michael P. Snyder, Jan Clawson, Eric R. Joyce, Andrew Rush, and Simon Patané. "Development of a Sustainable Earth Orbit Economy," AIAA SPACE and Astronautics Forum and Exposition, AIAA SPACE Forum, (AIAA 2017-5366)

Eric R. Joyce, Max Fagin, Paul Shestople, Michael P. Snyder, and Simon Patané. "Made In Space Archinaut: Key Enabler for Asteroid Belt Colonization," AIAA SPACE and Astronautics Forum and Exposition, AIAA SPACE Forum, (AIAA 2017-5364)