Liam Robinson – *Curriculum Vitae*

robin502@purdue.edu

Education

Purdue University – West Lafayette, IN

Ph.D. Aeronautical and Astronautical Engineering – 4.0 GPA — January 2024 – Present
MS Aeronautical and Astronautical Engineering – 4.0 GPA — January 2023 – December 2023
BS Aeronautical and Astronautical Engineering – 4.0 GPA — August 2019 – December 2022

Fellowships, Awards, and Honors

- Best graduate presentation – *Purdue Aeronautics and Astronautics Symposium* — May 2025
- National Defense Science and Engineering Graduate Fellowship (NDSEG) — May 2023
- NSF Graduate Research Fellowship (GRFP) — May 2023
- NASA National Space Technology Graduate Research Opportunity Fellowship (NSTGRO) — May 2023
- Third place graduate presentation – *Purdue Aeronautics and Astronautics Symposium* — May 2023
- Best research talk – *Undergraduate Research Conference* — May 2022
- Best interdisciplinary research – *Undergraduate Research Conference* — May 2022
- Best undergraduate presentation – *Purdue Aeronautics and Astronautics Symposium* — May 2022

Employment

Space Information Dynamics Group – Graduate Research Assistant — October 2021 – Present
Astronomical Institute, University of Bern, Switzerland – Visiting Ph.D. student — May 2024 – August 2024
The Aerospace Corporation – Graduate Astrodynamics Intern — May 2023 – August 2023
Katalyst Space Technologies – Guidance, Navigation, and Control Intern — May 2022 – August 2022
Analytical Graphics, Inc. – Systems Engineering Intern — Jan 2021 – August 2021

Professional Service

- Referee: Journal of the Astronautical Sciences

Academic Outreach

Founder of Boilerexams.com — August 2019 – Present

First-Author Publications

Robinson, Liam and Carolin Frueh. "Light Curve Inversion for Reliable Shape Reconstruction of Human-Made Space Objects". In: *Proceedings of the 32nd AIAA/AAS Astrodynamics Specialist Conference*. Sept. 2022, pp. 1–19.

Robinson, Liam. "Light Curve Simulation and Shape Inversion for Human-Made Space Objects". Master's Thesis. Purdue University, Dec. 2023. URL: https://hammer.purdue.edu/articles/thesis/_b_LIGHT_CURVE_SIMULATION_AND_SHAPE_INVERSION_FOR_HUMAN-MADE_SPACE_OBJECTS_b_/24728835?file=43481214.

Robinson, Liam and Carolin Frueh. "A CCD/CMOS Telescope Digital Twin for Space Situational Awareness". In: *Advances in Space Research* 76.5 (2025), pp. 3074–3097. ISSN: 0273-1177. DOI: https://doi.org/10.1016/j.asr.2025.06.053. URL: https://www.sciencedirect.com/science/article/pii/S0273117725006659.

Robinson, Liam and Carolin Frueh. "Optimal Light Curve Attitude Inversion with Measurement Noise: Two Case Studies". In: *Proceedings of the 9th European Conference on Space Debris*. European Space Agency. Bonn, Germany, Apr. 2025.

Other Publications

Frueh, Carolin et al. "Space Object Characterization from Light Curves". In: *44th COSPAR Scientific Assembly. Held 16-24 July* 44 (2022), p. 3159.

Burton, Alexander, Liam Robinson, and Carolin Frueh. "Attitude Estimation from Scratch for Human-Made Objects Using Light Curves". In: *The Second International Orbital Debris Conference*. 2023. URL: https://www.hou.usra.edu/meetings/orbitaldebris2023/pdf/6155.pdf.

Burton, Alexander, Liam Robinson, and Carolin Frueh. "Attitude Estimation Using Light Curves: A Particle Swarm Approach". In: *AIAA SciTech 2024 Forum*. 2024. URL: https://arc.aiaa.org/doi/abs/10.2514/6.2024-0199.

Burton, Alexander, Liam Robinson, and Carolin Frueh. "Light curve attitude estimation using particle swarm optimizers". In: *Advances in Space Research* (2024). ISSN: 0273-1177. DOI: https://doi.org/10.1016/j.asr.2024.09.008. URL: https://www.sciencedirect.com/science/article/pii/S0273117724009281.

Working Papers

Group lead by Bethany Ehlmann. "Lunar Trailblazer Spacecraft Tracking and Mission Recovery Attempt: Characterization of Status and Behavior of a Non-Cooperative Object in Cis-Lunar Space". In: *Earth and Space Science* (2025). Submitting for the Lunar Trailblazer special issue.

Group lead by Paul Burke. "Determination of Lunar Trailblazer's Spin State using Ground-Based Optical and Radar Observations". In: *Earth and Space Science* (2025). Submitting for the Lunar Trailblazer special issue.

Robinson, Liam and Carolin Frueh. "Global Light Curve Attitude Estimation With Noisy Measurements and Inertia Uncertainty". In: *Journal of Astronautical Sciences* (2025). Revisions submitted.

Robinson, Liam, Amanda Steckel, et al. "Lunar Trailblazer Attitude Inversion from Ground-Based Light Curves with Material Sensitivity Analysis". In: *Earth and Space Science* (2025). Submitting for the Lunar Trailblazer special issue.

Robinson, Liam and Carolin Frueh. "High-Fidelity Measurement Model for Space Debris Laser Ranging". In: (2026). To be submitted for the Astrodynamics Specialists Conference.

Robinson, Liam and Carolin Frueh. "Simultaneous Attitude and Shape Constraints from Space Debris Laser Ranging Measurements". In: (2026). To be submitted for the Astrodynamics Specialists Conference.