CURRICULUM VITAE

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ABOUT

Lauren is a scientific data visualization researcher with a focus on immersive technologies. Her work has applications for NASA Mission Operations related to planetary terrain visualization for rover path planning and geological analysis. She bridges the gap between technical execution and scientific inquiry, leveraging strengths in data processing, real-time rendering, AR/VR software development, and immersive user experience design. She excels at leading interdisciplinary teams – including scientists, stakeholders, operators, and software developers – to drive collaborative innovation.

EDUCATION

Arizona State University | School of Arts, Media and Engineering

B.S. Digital Culture — 2019

M.A. Media Arts and Sciences — 2021

Ph.D. Media Arts and Sciences — 2025

Thesis: Real-time Rendering of Multiscale Planetary Data across VR, AR, and Screen-based Systems

Thesis Advisor: Dr. Robert LiKamWa

HIGHLIGHTED PUBLICATIONS

Gold, L., & LiKamWa, R. (2024). Enhancing Cross-Virtuality Collaboration for Geospatial Data Visualization. *AGU24*.

Gold, L., LiKamWa, R., Powell, K., & Roberts, J. (2021, December). A New Approach to Data Visualization Using Virtual Reality to Improve Mission Planning Workflows. In *AGU Fall Meeting Abstracts* (Vol. 2021, pp. IN32A-02).

Gold, L., Bahremand, A., Richards, C., Hertzberg, J., Sese, K., Gonzalez, A., ... & LiKamWa, R. (2021, March). Visualizing planetary spectroscopy through immersive on-site rendering. In *2021 IEEE virtual reality and 3D user interfaces (VR)* (pp. 428-437). IEEE.

Gold, L., Bartolomea, H., Xiong, S., Gonzalez, A., Powell, K., Dickenshied, S., ... & LiKamWa, R. (2020, December). JMARS Augmented and Virtual Reality Experiences for Planetary Research, Education, and Collaboration. In *AGU Fall Meeting Abstracts* (Vol. 2020, pp. SY047-07).

OTHER PUBLICATIONS

Laursen, F., Pandya, K., Melo, G., Lobo, J., Zhao, D., Gold, L., & LiKamWa, R. (2025, February). AutoCalNet-Continuous Real-Time Calibration of Networked Mobile Volumetric Cameras. In Proceedings of the 26th International Workshop on Mobile Computing Systems and Applications (pp. 129-129).

Hodges, K. V., Bardoliya, F., Das, J., Gold, L., Hael, J., Kohl, E., ... & Schmitt, H. H. (2024). Improving Planetary Field Geology Research and Training Using High-Spatial-Resolution, Immersive Virtual Environments. *AGU24*.

Wen, J., Shi, Q., Gold, L., Ma, Q., & LiKamWa, R. (2024, March). Volumetric Motion Annotation and Visualization for Immersive Sports Coaching. In *2024 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)* (pp. 1196-1197). IEEE.

Dickenshied, S., Christensen, P. R., Rios, K., Piacentine, N., Gold, L., LiKamWa, R., ... & Edwards, C. S. (2024). Beyond the PC Screen: Using JMARS to Visualize Planetary Remote Sensing Data on Your Phone, Tablets, and VR Devices. *LPI Contributions*, *3040*, 2688.

Wen, J., Gold, L., Hu, J., Bahremand, A., Shaikh, A., Farber, C., ... & LiKamWa, R. (2022, June). Adaptive 5G systems for interactive volumetric sports analysis in augmented reality. In *Proceedings of the 20th Annual International Conference on Mobile Systems, Applications and Services* (pp. 615-616).

LiKamWa, R., Powell, K., Gold, L., & Dickenshied, S. (2021, December). Planetary Visor: Immersive Visualization of Orbital and In-Situ Data from Mars for Scientific Analysis and Public Engagement. In *AGU Fall Meeting Abstracts* (Vol. 2021, pp. IN32A-08).

Bahremand, A., Gold, L., Richards, C., Sese, K., Powell, K. E., Dickenshied, S., ... & LiKamWa, R. (2020, March). Virtual and Augmented Reality Tools for Planetary Scientific Analysis and Public Engagement. In *51st Annual Lunar and Planetary Science Conference* (No. 2326, p. 2202).

EXPERIENCE

Research Assistant, Meteor Studio ASU, Tempe, AZ | 2019 - Present

- Conducted systems research on scientific data visualization, focusing on multi-scale planetary terrain reconstruction pipelines, multi-modal immersive geological analysis, and cross-virtuality collaboration across geospatial scales.
- Led user studies to evaluate immersive visualization tools, collaborating with planetary scientists, faculty, and students to address complex challenges in planetary science data visualization.
- Directed multiple teams to successfully publish XR applications across all major platforms (Steam, Meta, Apple App Store, Google Play Store), overseeing system architecture, UI/UX, and 3D modeling design.
- Acted as technical lead for the development of the immersive *Geology 101* course at ASU, in which surveys and user testing reported a high impact on student engagement and competency.
- Fulfilled Teaching Assistant duties for ASU courses *Designing for Dreamscape VR* and *Spatial Audio for VR in the School of Arts, Media and Engineering.*

Visiting Student Researcher, NASA Jet Propulsion Laboratory, Pasadena, CA | Jun- Dec 2022

- Developed a VR application for interactively exploring 360-degree panoramas created from Mars rover imagery, supporting the Mars 2020 mission operations in planning sample tube drop paths.
- Engineered an interactive lens shift feature to undistort images at the poles and enabled custom warping, enhancing the understanding of true geometry throughout the panorama.
- Designed an interactive disparity slider to address hardware limitations, ensuring comfortable and adaptable viewing experiences for many users.

Visiting Student Researcher, NASA Jet Propulsion Laboratory, Pasadena, CA | Summer 2021

- Developed POC data visualization tool to assist in Mars Sample Return mission planning.

- Interviewed mission operations scientists and engineers to understand visualization challenges and the potential for immersive technology to integrate with their workflows.
- Designed concept workflows for mission operations visualization challenges.

XR Technical Lead, ASU Interplanetary Initiative, ASU | Jan 2020 - Dec 2021

- Managed Five Senses in Space, a pilot project comprising sub-projects: VR Smell Engine, Mars AR and VR experiences, Mars Simulated Habitat installation, and HoloLucination AR collaboration tool.
- Created sprint cycles for software projects, tracked overall progress, and presented updates to the Interplanetary Initiative community.

SERVICE

Workshop Organizer – Creating 3D scenes for XR geospatial analysis, LPSC ‘25
Workshop Organizer – Lunar Digital Twin Workshop hosted at JPL ‘24
Tutorial Organizer – Photogrammetry of Martian Terrains from Perseverance Rover Imagery, IEEEVR ‘24
Workshop Organizer – Planetary terrain building workshops hosted in part with JPL ‘23
Judging Panelist – Michael H. Freilich Student Visualization Competition, AGU ‘23
Digital Culture Summer Institute Teacher– Arizona State University, June ‘23
Planetary Terrain Consortium Organizer– Pt I: ASU, February 2023 and Pt II: JPL, April 2023

AWARDS

Michael H. Freilich Student Visualization Competition Grand Prize Winner – AGU ’22
Best Demo Award – MobiSys ’22
Michael H. Freilich Student Visualization Competition Runners-Up Award – AGU ’21