

# Laurel Bourg

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## CORE COMPETENCIES

- Mathematics & Physics
- Geophysics & Geomorphology
- Computational Physics
- Compiling, Analyzing, and Verifying Data
- Cultivation of Productive and Inclusive Environments
- Development and Utilization of High-Level Software
- Scientific Communication

## EDUCATION

### Georgia Institute of Technology

*Bachelor of Science in Physics (GPA 3.87/4.00)*

Astro Concentration, Scientific and Engineering Computing Minor, Geophysics Minor

Atlanta, Georgia

May 2026

## RESEARCH EXPERIENCE

### PLANETAS

*Research Assistant*

Georgia Tech

9/2023 - Present

- Model accurate physical representations of outburst crater breach floods in martian craters using software like D-Claw and ANUGA to identify areas of high inundation and sediment deposit
- Interpret data outputs from the Georgia Tech supercomputer and compare with current martian geographical data on QGIS from instruments like MOLA and HRSC
- Investigate eastern channel of Jezero Lake and outburst flooding as a transport mechanism of sediment and possible biomarkers
- Collaborate with other Mars researchers as information availability and new understanding comes to light

### Geometry of Materials Research Lab

*Research Assistant*

Georgia Tech

5/2024 – 12/2024

- Apply statistical techniques over sweeps of yarn parameters such as bending modulus, length, and radius using python scripts based on numerical interpretation of continuous systems.
- Evaluate relationships between parameters and Young's modulus in Wolfram Mathematica to better understand the physics of knit stitch behavior

### LIGO & GT Collaboration

*Research Assistant*

Georgia Tech

9/2022-3/2024

- Interpreted signal processing data from LIGO through analytical software based on Bayesian methods.
- Measured effectiveness of BayesWave through comparison of output to other similar software.

## PROFESSIONAL EXPERIENCE

### Earth and Atmospheric Sciences Department

*Administrative Student Assistant*

Georgia Tech

5/2024 – 5/2025

- Maintain a productive environment in the department by way of delivering correspondence, keeping supplies stocked, and mitigating obstacles faced by faculty day-to-day.
- Communicate information and problem-solve for supervisors, EAS faculty, and students by telephone, in written form, e-mail, or in person while representing the department.

## CAMPUS & COMMUNITY INVOLVEMENT

*Society of Women in Physics President (5/24-Present), Secretary (8/23-5/24)*

9/22 - Present

- Organize specific plans and delegate roles to accomplish goals that improve the welfare of the physics department student body and promote an environment that welcomes women and gender minorities.
- Lead executive officer meetings and promote constructive conversation.

<b>Society of Physics Students Outreach Committee Chair</b> <i>(4/23 – Present)</i>	9/22 - Present
<ul style="list-style-type: none"> <li>• Cultivate interest in physics among children in K-12 through interactive demonstrations and heartfelt passion</li> <li>• Develop relationships between Georgia Tech and local schools with an emphasis in underprivileged areas.</li> </ul>	
<b>Student Emerging Leaders Advisory Board</b> <i>Board Member</i>	6/24 – 5/25
<ul style="list-style-type: none"> <li>• Advise Georgia Tech administration on issues concerning students and their wellbeing</li> </ul>	
<b>Great Conversations</b> <i>Chair of Internal Affairs (8/23 – Present)</i>	9/22 – 2/25
<ul style="list-style-type: none"> <li>• Facilitate amicable philosophical conversation during Socratic-forum-style discussion meetings</li> </ul>	

## ABSTRACTS & PRESENTATIONS

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Laurel Bourg, Karin Lehnigk, Francis Rivera-Hernandez and Karl Lang (2024). Simulating Outburst Floods from East Jezero Crater Using D-Claw. Poster presentation delivered at the American Geophysical Union Annual Meeting, Washington, D.C., December, 2024

Laurel Bourg, Karin Lehnigk, Francis Rivera-Hernandez and Karl Lang (2024). Simulating Outburst Floods from East Jezero Crater Using D-Claw. Poster presented at APS Conference for Undergraduate Women and Gender Minorities in Physics, University of Alabama, January, 2025

## HONORS AND AWARDS

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<b>Student Leadership Grant Recipient</b>	12/2024
<b>PURA Travel Award</b>	10/2024
<b>Georgia Tech College of Science Dean's Scholarship</b>	5/2022
<b>National Merit Commended Scholar</b>	5/2022