

Sasha Novack

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EDUCATION

UNIVERSITY OF COLORADO, BOULDER (CU BOULDER)

ENGINEERING PHD, CREATIVE TECHNOLOGY AND DESIGN

Joint advised, ATLAS Institute and the Physics Education Research group

Boulder, CO

August 2020 – (Expected) May 2026

JOHNS HOPKINS UNIVERSITY (JHU)

B.Sc. PHYSICS, MINOR IN MUSIC

Baltimore, MD

August 2016 – December 2019

INDUSTRY EXPERIENCE

VANTOR (FORMERLY MAXAR TECHNOLOGIES – UI Docs, API Docs)

Technical Writer/CAD Engineer

Sr Engineering Support

MadCap Softwares, Markdown, html, javascript, docusaurus, AI implementation

Boulder, CO

April 2025 – Present

May 2022 – April 2025

WRITING EXPERIENCE & PUBLICATIONS

TECHNICAL WRITING

- Technical documentation created and edited for [HUB UI](#), [HUB API](#), [GEGD Pro](#), [SWIR](#), [Raptor](#), and more, including classified documentation. All documentation was user-facing and designed for customer/contractor enablement.

PEER-REVIEWED ARTICLES

H-index: 7

- S. Novack, N. D. Finkelstein, E. Do, "Fabrication of a Physical Circuitry Activity Booklet to Teach English", *IEEE Transactions on Learning Technologies*, 2025, in review.
- S. Novack, E. Do, N. D. Finkelstein, "An Interactive STEM Activity in a non-STEM Classroom: a Case Study", *Journal of STEM Outreach*, 2025, in review.
- T. Hopkins *et al.*, "XR Jam: Design Considerations for Music Networking with AI in XR," in *2024 IEEE International Conference AlxVR*, Jan. 2024, doi: [10.1109/AlxVR59861.2024.00021](#).
- D. Albin *et al.*, "PhageBox: An Open Source Digital Microfluidic Extension With Applications for Phage Discovery," *IEEE Transactions on Biomedical Engineering*, Jan. 2024, doi: [10.1109/TBME.2023.3295418](#).
- R. Datta *et al.*, "Cosmology Large Angular Scale Surveyor (CLASS): 90 GHz Telescope Pointing, Beam Profile, Window Function, and Polarization Performance," *ApJS*, July 2024, doi: [10.3847/1538-4365/ad50a0](#).
- S. Dahal *et al.*, "Microwave Observations of Venus with CLASS," *Planet. Sci. J.*, Aug. 2023, doi: [10.3847/PSJ/acee76](#).
- Y. Li *et al.*, "CLASS Data Pipeline and Maps for 40 GHz Observations through 2022," *ApJ*, Oct. 2023, doi: [10.3847/1538-4357/acf293](#).
- S. Dahal *et al.*, "Four-year Cosmology Large Angular Scale Surveyor (CLASS) Observations: On-sky Receiver Performance at 40, 90, 150, and 220 GHz Frequency Bands," *ApJ*, Feb. 2022, doi: [10.3847/1538-4357/ac397c](#).
- Purnendu *et al.*, "Electriflow: Soft Electrohydraulic Building Blocks for Prototyping Shape-changing Interfaces," in *Proceedings of the 2021 ACM Designing Interactive Systems Conference*, June 2021, doi: [10.1145/3461778.3462093](#).
- S. Dahal *et al.*, "Venus Observations at 40 and 90 GHz with CLASS," *Planet. Sci. J.*, Apr. 2021, doi: [10.3847/PSJ/abedad](#).
- Purnendu *et al.*, "Electriflow: Augmenting Books With Tangible Animation Using Soft Electrohydraulic Actuators," in *ACM SIGGRAPH 2021 Labs*, Aug. 2021, doi: [10.1145/3450616.3464523](#).
- K. Rozen-Gagnon *et al.*, "Argonaute-CLIP delineates versatile, functional RNAi networks in *Aedes aegypti*, a major vector of human viruses," *Cell Host & Microbe*, May 2021, doi: [10.1016/j.chom.2021.03.004](#).

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- K. Rozen-Gagnon, S. Yi, E. Jacobson, **S. Novack**, and C. M. Rice, "A selectable, plasmid-based system to generate CRISPR/Cas9 gene edited and knock-in mosquito cell lines," *Sci Rep*, Jan. 2021, doi: [10.1038/s41598-020-80436-5](https://doi.org/10.1038/s41598-020-80436-5).

RESEARCH EXPERIENCE

LIVING MATTER LAB, ACME LAB, & PER Group, CU BOULDER

Boulder, CO

RESEARCH ASSOCIATE

July 2020 – Present

- Studying the effects of physics-based activities in non-science classrooms.
- Building various apparatuses for research purposes: MuseGlove, a system designed to teach piano through haptic stimulation, creating an autotuner for stringed instruments, building circuitry for digital microfluidic device, developing new techniques for heat-sealing polymers (publications, see website).
- Aided in the development of an AR drum circle project, facilitating musicians during the pandemic.

COSMOLOGICAL LARGE ANGULAR SCALE SURVEYOR (CLASS) RADIO TELESCOPE LAB, JHU

Baltimore, MD

RESEARCH ASSOCIATE

September 2017 – May 2020

- Developing and maintaining software tools for database analysis (MySQL, Python). Data analysis.
- Building and debugging the Variable Polarizing Modulator (VPM), the detector system responsible for polarizing and focusing radio-waves for the telescope.
- **FIELD WORK:** Stationed on-site at the telescope in the Atacama Desert of Chile from January – April 2020. Responsible for detector installation, cryogenic work, maintenance, filter creation, machining, and installation. Developed a compressed air system to replace a costly nitrogen gas system.

FRANCESCA SERRA'S LIQUID CRYSTAL LAB, JHU

Baltimore, MD

RESEARCH ASSOCIATE

May 2018 – December 2019

- Wet-lab cell work with neurons: growing cultures, plating onto specially treated liquid crystal slides to allow growth along a specific gradient.
- Developed machine to evenly distribute a substrate onto glass microscope slides.

SANDRA GABELLI'S PROTEIN X-RAY CRYSTALLOGRAPHY LAB, JOHNS HOPKINS HOSPITAL

Baltimore, MD

RESEARCH ASSOCIATE

May – August 2017

- Research into cancer genomics and protein structure. Responsible for developing new protein tertiary structures and testing, both *in silico* and *in vitro* how these structures affected various protein properties.
- Various wet-lab procedures to create these proteins, X-Ray crystallography and pyMOL to test structures and properties.

RICE VIROLOGY LAB, ROCKEFELLER UNIVERSITY

New York City, NY

VOLUNTEER RESEARCHER

May – August 2016

- Mapping sequences of various vRNA strands, PCR prep, Western Blots, testing how different fabricated vRNA strands create antibodies effective against the Zika Virus.

EDUCATIONAL/OUTREACH EXPERIENCE

- [Quantum Scholars](#), co-director, CU Boulder Jan 2023 – May 2026
- [PISEC Program](#), CU Boulder May 2022 – December 2024
- Instructor of Record – Intro Physics Lab, the Physics of Light and Color, General Physics 1
- Teaching Assistant – Capstone 1, Teaching and Learning Physics August 2020 – December 2024
- Teaching Assistant – Undergraduate Physics Lab, JHU August 2018 – December 2019
- Demos and Outreach – Physics Fair, JHU Annually. 2017 – 2019