Naomi Gluck

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Education

Yale University | Physics PhD Program - 1st Year Aug. 2021 – Present
Advisor: Dr. Daisuke Nagai *New Haven, CT*

Stony Brook University Aug. 2017 – May 2021
Bachelor of Science in Physics *Stony Brook, NY*
Bachelor of Science in Astronomy and Planetary Sciences *Stony Brook, NY*
Minor in Music *Stony Brook, NY*

Publications

Royal Astronomical Society Main Journal April 2020

- Gofman, R., A., Gluck, N., & Soker, N. 2020, MNRAS 494, 5230: *Enhanced mass-loss rate evolution of stars with mass greater than 18 $M_{\odot}$, and missing optically-observed type II supernovae*

Research Experience

Graduate Research September 2021 – August Present
Yale University, Dr. Daisuke Nagai *New Haven, CT*

- Using AI accelerated simulation techniques to analyze the evolution of dark matter halos surrounding galaxies and other substructure.
- High performance computing techniques to run simulations on Python Anaconda for data collection.
- Work with collaborators from from CalTech and the Department of Energy.

Undergraduate Research | Physics Thesis September 2019 – August 2021
Stony Brook University, Dr. Alan Calder *Stony Brook, NY*

- Studied Uncertainty Quantification for 1 $M_{\odot}$ following the MESA open source code to determine the validity and bounds of two different wind parameters.
- Analysed simulation results to extract data to quantify and visually assess the effects of uncertainty in the winds.
- Learned and applied Parallel Computing techniques by performing suites of MESA simulations on our campus cluster SeaWulf.
- Worked on this project as a paid researcher during Summer 2020.

Undergraduate Research | Astronomy Thesis September 2020 – December 2020
Stony Brook University - Dr. Fredrick Walter *Stony Brook, NY*

- Data analysis of Nova V1047 using archival spectroscopic data from Stony Brook/SMARTS to perform a spectral time analysis on two different events.
- Used Python for data analysis, along with spectral catalogues for result confirmation.

Undergraduate Research July. 2019 – April 2020
Technion Institute of Technology, Dr. Noam Soker *Haifa, Israel*

- Research conducted at the Technion Institute of Technology in Israel.
- Used MESA (Modules for Experiments in Stellar Astrophysics) open source code to simulate the evolution of several different progenitor stars with variations on wind and mass loss parameters, and Matlab for data analysis and calculations.

Observational Astronomy September 2020 – December 2020
Stony Brook University - Dr. Fredrick Walter *Stony Brook, NY*

- Observations of the cataclysmic variable star, SS Cygni, using Stony Brook's 14" telescope and CCD camera.
- Used computer programs CCDSoft and SkyChart to position the telescope throughout observational period.
- Analyzed FITS image files through Python, presented on a poster for final project presentations.

Presentations

IACS Seminar April 2021

Stony Brook University - Dr. Douglas Swesty *Stony Brook, NY*

- Seminar on the propagation of incertitude through computer simulations.
- Discussed Uncertainty Quantification Research results and explained how models of incertitude propagation are used in the open source code, MESA.

SBYIR: Young Investigators Review November 2020

Stony Brook University *Stony Brook, NY*

- Live presentation via Zoom on research conducted at Stony Brook, specifically the current results of the Uncertainty Quantification (UQ) Study.

URECA: Undergraduate Research Symposium May 2020

Stony Brook University *Stony Brook, NY*

- Poster and live presentation via Zoom on research conducted at the Technion Institute in Israel.

Teaching and Broader Impacts

Trial and Error | Link July 2021 - Present

Yale University *New Haven, CT*

- Website built to help physics students through their undergraduate journey and advice for applying to graduate programs.
- Based on personal experience with both the undergraduate and graduate application process, along with research experiences and recommendations.
- Offering advice on completing the physics program, or any program in general, alongside dealing with ADHD.

Seawolves for Israel | President August 2018 – May 2021

Stony Brook University *Stony Brook, NY*

- Organize and lead weekly general and executive body meetings to educate others about Israel's history, culture, and international relations. This includes working together with other student-led groups on campus, like the Jewish Student Association, College Republicans, The Environmental Club, Hillel, and the Iranian Jewish Club to broaden interactions between students.
- Previously served on the Executive Board as Secretary (2018), and Vice President (2019).
- **Launched and taught a Hebrew 101 class over zoom.** Created teaching materials, supplementary materials and assignments, taught vocabulary, conversational Hebrew, and reading comprehension (July - August 2020).

Tutoring August 2016 – Present

Self-Employed *Oyster Bay, NY*

- Tutoring students (in-person and online) in Physics, Math, Biology, Chemistry, and Earth Science.

Projects

Senior Tutorial in Advanced Topics Spring 2021

Stony Brook University, Dr. Michael Zingale *Stony Brook, NY*

- Tutorial on graduate-level computational astrophysics, to understand the design of numerical algorithms, limitations of numerical methods, and applications to astrophysics.

Relevant Coursework

Graduate 2021 – Present

Yale University *New Haven, CT*

- Graduate Classical Mechanics, Graduate Quantum Mechanics I, Math Methods
- Statistical Mechanics, Graduate Quantum Mechanics II, Computing for Scientific Research

Undergraduate 2019 – 2021

Stony Brook University *Stony Brook, NY*

- Galaxies, General Relativity, Electromagnetic Theory II, Stars and Radiation, Special Topics: Exoplanets, Cosmology

Technical Skills

Computational Science: Techniques of parallel computing including parallelization by both threads (OpenMP) and message passing (MPI), job submission with Slurm, and software management with Modules.
Languages: Python/Jupyter, C/C++, LaTeX, Matlab, Fortran, Mathematica
Libraries: NumPy, Matplotlib, pandas, rebound, Astropy, Scipy, Statistics
Software Skills: MESA, DS9, CCDSoft, SkyChart, Microsoft Office, Pages, Numbers, Keynote, Procreate, Photoshop, Pixelmator, iMovie, LTSpice, Sibelius
Operating Systems: Linux, MacOS, Windows

Work Experience

Boost Tutors and Mentors September 2021 – Present
Online Tutoring *New Haven, CT*

- Tutoring students online in any math or science course.
- Helping students to build confidence in their own abilities, and introducing better study methods for improving their course grades.

Business Partnership May 2020 – Present
Online Startup *Oyster Bay, NY*

- Established online custom graphics art company.
- Use Procreate on iPad to design all custom artwork for merchandise including face masks, pillows, and blankets, specifically partnering with Stony Brook University Hillel, SUNY Geneseo Hillel, and Ohio State Hillel.

StandWithUs Emerson Fellowship August 2019 – May 2020
Stony Brook University *Stony Brook, NY*

- Partnered with other clubs and organizations at SUNY Stony Brook to create 12 Israel-related events that impacted approximately 150 students.
- Participated in the StandWithUs conference in January 2020 in Los Angeles, to enhance critical thinking, networking, and public speaking skills.

Leadership Roles and Activities

Stony Brook Hillel Board of Directors August 2020 – May 2021
Stony Brook University *Stony Brook, NY*

- Discuss the changes necessary to adapt Hillel events, including holiday services, to the limitations of an online-only platform.
- Representative of the student-body to clarify to board members what will work more effectively to capture a student's interest.

Society of Physics Students | General Member August 2017 – May 2021
Stony Brook University *Stony Brook, NY*

University Orchestra | Principle Oboe August 2017 – May 2021
Stony Brook University *Stony Brook, NY*

For More Information

LinkedIn: http://linkedin.com/in/naomigluck
Trial and Error: https://ngluckxx.wixsite.com/trialanderror
Humans of Hillel: https://tinyurl.com/y3b53rf8