

## EDUCATION

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### **Georgia Institute of Technology**

Aug 2022 - Expected: July 2027

Ph.D. Candidate in Physics (GPA: 3.78/4.00)

Research focus: Computational Physics

Minor: Computational Data Science and Intelligence

Dissertation Topic: *Seeing the Invisible: Developing the First Comprehensive Simulation of Direct-Collapse Black Hole Formation*

### **University of California, Los Angeles (UCLA)**

Sep 2016 - Dec 2020

Bachelor of Science in Astrophysics

Minor: Arabic and Islamic Studies

## RESEARCH AND PROFESSIONAL EXPERIENCE

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### **NASA**

April 2024

*Review Executive Secretary*

- Supported the chair and panelists acting as a scribe for all Astrophysics Research and Analysis (APRA) proposal discussions to reach final verdict.
- Assisted in organizing review panel meetings, including managing conflicts of interest, scheduling, coordinating meeting agendas, and ensuring that information required for deliberations is distributed to the panelists on a timely basis.
- Received highly positive feedback from panelists, who noted that my detailed notes significantly improved their ability to evaluate the proposals effectively.

### **ICEYE**

Oct 2021- Jul 2022

*Satellite Mission Operator*

- Performed daily monitoring and commanding functions for synthetic aperture radar (SAR) satellites, supported telemetry and tracking, and controlled ground network operations.
- Supported daily Payload Operations, responded to satellite and network alarms, executed commands and procedures (nominal and anomalous), supported with pass scheduling/payload scheduling activities, and coordinated troubleshooting activities.
- Assisted Spacecraft Engineers in spacecraft anomaly analysis and gathered data to create anomaly reports.
- Presented and explained ICEYE's monitoring technology and software capabilities to officials from the Space Force Executive Advisory Group, NRO, NGA, NOAA, and company board members.
- Helped in the hiring process of operators; developed training materials and trained new operators.

### **California Institute of Technology and**

Jun 2020 - Aug 2020

### **NASA Jet Propulsion Laboratory**

*Research Fellow*

- Debugged code and added upgrades to the Python planetary modeling software SatStressGUI that automate data processing, make it more user-friendly, and calculate maximum stresses on icy moons.
- Documented several bugs in the source SatStressGUI code and worked with advisors to fix them.
- Wrote and submitted a proposal, an abstract, two reports, and a final paper that were approved by JPL.
- Co-authored a conference paper that was presented at The Geological Society of America annual meeting.
- Attended and participated in Europa Clipper planning meetings and weekly research discussions with the Europa Clipper scientists to review important research papers.

**NASA Marshall Space Flight Center and  
the University of Alabama in Huntsville**  
*REU Intern*

Jun 2019 - Aug 2019

- Conducted NSF-funded heliophysics research on the evolution and explosiveness of the magnetic field from bipolar ephemeral active regions (BEARs) in solar coronal holes.
- Used Python and IDL to obtain significant results regarding flux cancellation and its role in being a trigger mechanism for eruptions in BEARs. Results disprove misconceptions presented in a major paper on the subject (Moore *et al.* 2010).
- Identified major bugs in the Python-based solar physics software package SunPy, and collaborated with developers at Lockheed Martin to debug code to correctly account for solar differential rotation.

**Search for Extraterrestrial Intelligence:  
Theory and Applications at UCLA**  
*Student Researcher*

Mar 2018 - Jun 2018

- Used Python to process and analyze data from the Green Bank Telescope to conduct a search for technosignatures from a Sun-like star that could host habitable planets.
- Used Python to compute Fourier transforms of the samples received from the star and to further process the data.
- Analyzed the signals to classify them as radio frequency interference, of anthropogenic nature, or unclassified signals that could potentially be technosignatures.
- Presented a machine learning algorithm that filters irrelevant interfering signals.
- Results are published in *The Astronomical Journal*.

**Bruin Spacecraft Group at UCLA**  
*Student Researcher*

Sep 2016 - Jan 2020

- Collaborated with team members to conduct research and write a proposal for a competition by Lens Research & Development, a company specializing in sun sensor design and development.
- Proposal suggesting an inexpensive, low-power application for an analog sun sensor that can operate a constellation of small satellites to communicate and navigate relative to each other won at the Small Satellite Conference.
- Helped engineer a plausible application for the analog sun sensor for satellite navigation and communication in proximity operations.
- Lens R&D will be implementing this application on future satellites.

PUBLICATION

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Margot *et al.* 2021, “A Search for Technosignatures around 31 Sun-like Stars with the Green Bank Telescope at 1.15–1.73 GHz,” *AJ* **161** 55 (<https://doi.org/10.3847/1538-3881/abcc77>).

CONFERENCE PRESENTATION WITH PUBLISHED ABSTRACT

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Patthoff, D. A., Leonard, E., **Nagib, C.**, Quick, L. C., and Wyrick, D. “Searching for European Plumes: Past, Present, and in the Future,” *The Geological Society of America 2020 Connects Online*, October 2020 (<https://doi.org/10.1130/abs/2020AM-356959>).

TALKS AND PRESENTATIONS

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**Poster Presentations**

**Nagib, C.**, and Wise, J. “Seeing the Invisible: Developing the First Comprehensive Simulation of Direct-Collapse Black Hole Formation,” *The 54th Saas-Fee Advanced Course: Galaxies and Black Holes in the First Billion Years as seen with the JWST*, Saas-Fee, Switzerland, January 2025

**Nagib, C.**, Panesar, N., Moore, R., and Sterling, A. “Cradle-to-Grave Evolution and Explosiveness of the Magnetic Field from Bipolar Ephemeral Active Regions (BEARs) in Solar Coronal Holes,”

- *APS Conference for Undergraduate Women in Physics*, Irvine, CA, January 2020
- *American Geophysical Union Annual Conference*, San Francisco, CA, December 2019
- *The University of Alabama in Huntsville Poster Day*, Huntsville, AL, August 2019

### Oral Presentations

**Nagib, C.**, “Seeing the Invisible: Developing the First Comprehensive Simulation of Direct-Collapse Black Hole Formation,” *JSI Workshop on The Formation and Early Evolution of Supermassive Black Holes*, Baltimore, MD, November 2024

**Nagib, C.**, “Direct Collapse Black Holes (DCBHs),” *Cosmic Coffee*, Atlanta, GA, November 2023

**Nagib, C.**, Pappalardo, R., and Patthoff, D. A. “Calculating Stresses on Europa and Other Solar System Moons: Improving SatStressGUI,” *JPL SURF Research*, Pasadena, CA, August 2020

**Nagib, C.**, Panesar, N., Moore, R., and Sterling, A. “Cradle-to-Grave Evolution and Explosiveness of the Magnetic Field from Bipolar Ephemeral Active Regions (BEARs) in Solar Coronal Holes,”

- *APS Conference for Undergraduate Women in Physics*, Irvine, CA, January 2020
- *The University of Alabama in Huntsville REU Final Presentations*, Huntsville, AL, August 2019

### AWARDS AND HONORS

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**Saas-Fee 2025 Advanced Course full travel grant** – Swiss National Science Foundation

**Summer Undergraduate Research Fellowship** – California Institute of Technology

**UCLA Dean’s Honors List for 3.75 GPA or higher**

**Lens R&D Sun Sensor Challenge Winner** – Small Satellite Conference

**1<sup>st</sup> Place Award in Project ECHO Business Competition** – UCLA

### TEACHING EXPERIENCE

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**Georgia Institute of Technology** Aug 2022 - Dec 2023  
*Teaching Assistant*

**UCLA Center for Learning in the Sciences** Sep 2018 - Dec 2018  
*Calculus Learning Assistant*

### OUTREACH AND EDUCATION

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**Georgia Institute of Technology** Sep 2023 - Present  
*Physics Allies for Wellness Lead Mentor*

- Provide online and in-person sessions for students to discuss their problems and guide them to find effective solutions, improving the climate in the physics department.
- Attend journal clubs to discuss current research that cover topics such as physics education, science communication, research ethics, and philosophy.
- Completed trainings focusing on safe spaces, addressing implicit biases, and other relevant topics to better equip me to support students facing challenges.

**Georgia Institute of Technology** Jun 2023 - Present  
*Physics Graduate Mentor*

- As an active member of the Graduate Association of Physicists, provide mentorship and academic guidance to first-year graduate students in the Physics Ph.D. program, offering support and insight into common challenges and how to overcome them.

- Assist mentees in course selection, research project development, and overall academic planning.
- Mediate conflicts and provide a safe space for mentees to discuss academic or research-related challenges, offering constructive solutions and resources.

**Georgia Institute of Technology**  
*CUWiP Panel Speaker and Volunteer*

Aug 2023 - Jan 2024

- Helped plan the APS Conference for Undergraduate Women in Physics (CUWiP) held at Georgia Tech by contacting physics departments at various educational institutions to promote the conference, and recruited students, professors and panel speakers.
- Assisted in the coordination and logistics of the conference, including scheduling and contacting vendors, and helped coordinate workshops.
- Served as a poster judge and on a panel motivating women in physics to consider potential career paths.

## SKILLS

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- Advanced in Python, C++, and IDL
- Experienced in running and analyzing hydrodynamic astrophysical simulations
- Highly experienced in Mathematica, MATLAB, Jupyter, and LaTeX
- Operating Systems: Macintosh, Windows, and Unix/Linux
- Fluent in English and Arabic