CHRISTOPHER PRAINITO

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EDUCATION

Harvard University — Cambridge, MA
A.B. Candidate in Physics and Mechanical Engineering, Secondary Field in Astrophysics. GPA: 4.0. — May 2026

John F. Kennedy High School — Bellmore, NY
Valedictorian; Oboist for NAfME All-National Symphony Orchestra. GPA: 4.0. — June 2022

RESEARCH EXPERIENCE

Stony Brook University — Stony Brook, NY
Undergraduate Researcher; Advisor: Mengkun Liu — May 2024 – Present

- Designed and developed a quadrature, phase-differential interferometer for improving sensitivity and resolution in scanning near-field optical microscope (SNOM) measurements.
- Contribute to the development of a THz SNOM, interferometric feedback systems, and atomic force microscopy (AFM) strain stages in the Ultrafast & Near-field Infrared Laboratory (UNI-Lab).

Harvard University — Cambridge, MA
Undergraduate Researcher; Advisor: Giulia Semeghini — May 2023 – September 2023

- Designed, aligned, and optimized optical systems to lock the frequency of various lasers for a dual-species, neutral atom array experiment.

New Jersey Institute of Technology — Newark, NJ
High School Researcher; Advisor: Omowunmi Sadik — March 2021 – September 2022

- Independently developed a research project and fabricated a novel paper-based biosensor for SARS-CoV-2.
- Analyzed colorimetric results following exposure to artificial saliva containing SARS-CoV-2 spike protein.

SELECTED PUBLICATIONS

Prainito, C. D., Eshun, G., Osonga, F. J., Isika, D., Centeno, C., & Sadik, O. A. (2022). Colorimetric Detection of the SARS-CoV-2 Virus (COVID-19) in Artificial Saliva Using Polydiacetylene Paper Strips. *Biosensors*, *12*(10), 804. https://doi.org/10.3390/bios12100804

KEY SKILLS

Languages: English (native proficiency), Spanish (professional working proficiency).
Software: Proficient in Python, Mathematica, MATLAB, C/C#/C++, Verilog, VHDL, Java, JavaScript, SQL.
Hardware: Detector Calibration; Optical System Design; CAD (SolidWorks, Fusion 360); Metal Machining; PCB Design.

SELECTED AWARDS & HONORS

John Harvard Scholar — November 2023 & 2024
Harvard College

Detur Book Prize Recipient — January 2024
Harvard College

Davidson Fellows Scholarship, Fellow — September 2022
Davidson Institute

International Science and Engineering Fair, Finalist — May 2022
Regeneron Pharmaceuticals & Society for Science

Science Talent Search, Scholar — January 2022
Regeneron Pharmaceuticals & Society for Science

PROFESSIONAL EXPERIENCE

Harvard University Cambridge, MA
Astrophysics Department Lab Assistant September 2024 – Present

- Maintain and repair the Astrophysics Department's professional-grade telescopes and equipment.
- Assist with laboratory activities and observing sessions for astronomy courses, as needed.

Harvard University Cambridge, MA
Course Assistant September 2023 – Present

- Host weekly office hours to provide guidance and support to math and engineering students in successfully solving problem sets.
- Evaluate and grade assignments to ensure academic progress and comprehension of course material.

Students Giving Trees, Inc. Bellmore, NY
Founder, President, and Treasurer September 2020 – Present

- Founded a student-run, nonprofit organization to replenish tree population in local parks and preserves.
- Organize fundraising activities and plan community tree planting events in coordination with local legislators.

Harvard Summer School Cambridge, MA
Secondary School Program Proctor June 2023 – August 2023

- Ensured the well-being of 16 high school students throughout the duration of the summer semester.
- Planned weekly activities for residential entryway and scheduled individual meetings with students.

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

Harvard Satellite Team (SEDS) Cambridge, MA
Chief Engineer September 2022 – Present

- Oversee and support five subteams (Computing, Electrical, Mechanical, Payload, and Ground Station) in designing, prototyping, and integrating a 2U Cube Satellite for our NASA CSLI project.
- Coordinate complex engineering tasks and ensure milestone completion for a planned launch and deployment from the International Space Station (ISS) in Q2 of 2026.

Student Astronomers at Harvard-Radcliffe (STAHR) Cambridge, MA
Equipment Manager & Board Member September 2022 – Present

- Responsible for managing, maintaining, and procuring telescopes, mounts, cameras, eyepieces, electronics, etc.
- Experience using the Loomis-Michael Observatory and adept in standard observatory operating procedures.

PERSONAL PROJECTS

Telescope Mount Cambridge, MA
Harvard University Nectar Funding May 2023 – August 2023

- Designed, manufactured, and assembled a professional-grade mount for aiming a telescope at celestial objects and tracking their motion with sub-arcsecond precision.
- Utilized a waterjet machine, milling machine, and manual lathe to fabricate intricate aluminum components.