

# SAACHI GREWAL

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## EDUCATION

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**Yale University**, New Haven, CT

Class of 2023

*Bachelor of Science in Applied Physics*, GPA: 3.86/4.0

Degree concentration in environmental science, certificate in Medieval Studies, member of Energy Studies Program

*Honors*: Yale Dean's Research Fellowship (2022), National Science Foundation REU Fellowship (2021), Center for Engineering, Innovation, and Design Research Fellowship (2020)

*Coursework*: Statistics, thermodynamics, quantum mechanics, electromagnetism, mechanical design, climate science, environmental organic chemistry. *Graduate level coursework*: Biophysics, complex systems

**Los Osos High School**, Rancho Cucamonga, CA

Class of 2019

Cumulative GPA: 4.83

*Activities/ Awards*: Superintendent's Honor Roll, Cum Laude, National Merit finalist, National AP scholar, AP Capstone Diploma, Varsity Tennis Captain, First place in Chaffey Joint Union Trust Fund Scholarship (2019)

## RESEARCH EXPERIENCE

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**Yale College Dean's Summer Research Fellowship**, *Researcher*, New Haven, CT

June 2022-present

- Constructed reactor to investigate novel CO<sub>2</sub> conversion processes using plasma electrolysis. Co-author on perspective paper regarding the on-field synthesis of nitrogen-based fertilizers using plasma technology.

**National Science Foundation REU Fellowship**, *Researcher*, New Haven, CT

June 2021-Aug. 2021

- Developed a novel mesh smoothing algorithm that maintains critical junctions and features in biological tissue. Compiled image-processing guidelines for porous network systems, enabling the O'Hern lab's ability to study evolutionary signatures in connective tissue of flower petals. Presented at the Leadership Alliance Conference.

**CEID Summer Fellowship**, *Researcher*, Tele-work

May 2020-Aug. 2020

- Constructed a novel passive control system able to withstand mechanical and temperature constraints of low earth orbit for a 2U CubeSat by prototyping with 3D-printed materials. Designed a custom MATLAB simulation for the determination of instrumentation parameters. Research was presented at the Yale Summer Research Symposium.

## LEADERSHIP EXPERIENCE

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**Society of Women Engineers**, *Community development chair*

May 2022-present

- Organized course selection event for undergraduates, hosted one-on-one mentorship dinners, plan large career events

**Yale Scientific Magazine**, *News staff writer and artist*

2020-present

- Conducted in-person interviews with faculty and researchers, created art to accompany articles. Representative titles: ["Staying Alive: How Plants Prepare for Winter"](#), ["Earth's Black Box: Recording Climate Change."](#)
- **Synapse outreach team, April 2020**, Guest lecturer at the Resonance Conference hosted for high school students, prepared a lecture on Einstein's "biggest blunder" for the audience of students from grades 9-12

**Yale Environmentalist**, *Editor and staff writer*

2021-present

- Provide semester-long feedback on biannual stories published in the humanities category
- Authored long-form essays on birdwatching, foraging, and environmental activism (copied [here](#)) and climate science over the generations (in process of publication, draft copy [here](#))

**Yale Undergraduate Aerospace Association**, *CubeSat Subsystem Project Leader*

2019-2021

- Yale CubeSat is chosen to launch with NASA and features a cosmic ray detector and novel flight control technology
- Supervised a group of nine students to engineer a passive satellite control system. Led workshops on Solidworks CAD software. Managed the purchase and shipment of materials for take-home kits during the pandemic.

## SKILLS AND INTERESTS

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- *Tools and technologies*: Microsoft Suite, Dropbox, Zoom, Computer-Aided Design (CAD)
- *Computer languages*: C, C++, MATLAB, R
- *Interests*: Member of TEETH spoken word poetry group, Elizabethan literary club and society
- *Languages*: Spanish (advanced), Punjabi (proficient), French (proficient)
- *Laboratory*: machine shop, 3D printing, Ion chromatography, High performance liquid chromatography, NMR