Curriculum Vitae

Zachary S. Siegel
Princeton University
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Education

Princeton University, 2021 – 2025
Scarsdale High School, 2017 – 2021
Columbia University[1], School of Professional Studies, 2020 – 2021
Stanford Online High School, 2016 – 2020

Publications

2021

Siegel, Zachary & Kulp, Scott. (2021). "Superimposing Height-Controllable and Animated Flood Surfaces into Street-Level Photographs for Risk Communication." Weather and Climate Extremes. 32. 100311. 10.1016/j.wace.2021.100311.

Conferences

2020

AGU Fall 2020 Conference, Oral Presenter

Experience

Climate Central
Research Intern, 2018 – 2021
climatecentral.org
Developed applications to superimpose the ocean onto street level images to warn residents about the risks of flooding. Algorithms leverage machine learning for depth completion of sparse LIDAR data, Blender to render the ocean, and novel techniques to generate a composite image that contains both rendered ocean water and a real street level image. Wrote the algorithms and am the first author of a paper published in Weather and Climate Extremes Journal on this method. Presented at the AGU Fall 2020 conference.

Youth Passion Project Inc.
Chairman of the Board, August 2020 – Present
Founder and President, March 2020 – June 2021
youthpassionproject.org
Founded the Youth Passion Project, a 501(c)(3) non-profit organization that provides a platform for high school students to teach classes to elementary and middle school learners. Courses

[1] I was dual-enrolled at Columbia University and Scarsdale High School. I took Discrete Mathematics, Computer Science Theory, Multivariable Calculus, and Linear Algebra at Columbia.

taught on subjects not commonly found in school, including Introduction to Origami, Basics of 3D Modeling, Intermediate Sanskrit, and more. Managed a team of over 200 instructors comprising 8 chapters throughout the world with over 2,000 student sign ups.

Robotics Team
Co-Captain, 2020 – 2021
Director of Engineering, 2018 – 2020
Member, 2017 – 2018
scarsdalerobotics.com
Co-Captain of the Scarsdale Robotics team. Managed a team of thirty members, overseeing engineering, programming, and outreach efforts. Facilitated communication within and between departments, coordinated strategy for competition, and taught new members the basics of engineering. Coordinated an effort for the team to tackle real-world problems that have solutions to benefit our local community during COVID-19 pandemic.

Selected Projects

Circuit Debater
circuitdebater.org
Created circuitdebater.org to allow debaters to post arguments, readings, and other resources to benefit students from lower-income communities without adequate access to coaching resources. Learned Google Compute Engine, PHP, MySQL, Linux, and Media Wiki to implement project. 1,000+ users.

Coding Tutorials
codingtutorials.org
While in middle school, I produced tutorial videos on the Scratch programming language to help younger students learn to code. Expanded project to help K-12 teachers implement Scratch in their classrooms.

Honors and Awards

Science Department Award, Scarsdale High School, 2021
Finalist, National Merit, 2021
2nd in Westchester-Rockland Junior Science & Humanities Symposium for Computer Science
18th in Nation for Lincoln-Douglas Debate, National Debate Coaches Association, 2021

Relevant Coursework

Scarsdale High School

AP Calculus BC	(2019-20)
AP Physics C: Mechanics	(2020-21)
Science Research	(2018-21)

Stanford Online High School

AP Computer Science A	(2017-18)
Data Structures and Algorithms	(2018-19)
AP Statistics	(2019-20)

Columbia University

COMS 3203:	Discrete Mathematics	(Summer 2020)
COMS 3261:	Computer Science Theory	(Summer 2020)
E 2000:	Multivariable Calculus	(Fall 2020)
COMS 3251:	Linear Algebra	(Spring 2021)

Princeton University

COS 226:	Algorithms and Data Structures	(Fall 2021)
COS 217:	Introduction to Programming Systems	(Fall 2021)
MAT 203:	Advanced Vector Calculus	(Fall 2021)
PHY 103:	General Physics I	(Fall 2021)
COS 240:	Reasoning About Computation	(Spring 2022*)
MAT 204:	Advanced Linear Algebra	(Spring 2022*)
PHY 104:	General Physics II	(Spring 2022*)