Ethan Cha

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EDUCATION

Bergen County Academies, Hackensack, NJ | Sep. 2022 – Present
GPA: 3.83 | SAT: 1550 | PSAT: 1460 | AP: Computer Science A (5), Physics 1 (5), AP Calc BC (5), AP Microeconomics (5), AP Physics C: Electricity and Magnetism (4), AP Physics C: Mechanics (5)
College Credit: Intro to Programming (BCC:INF 103), US History Since 1877 (FDU:HIST 1131) – 6 credits

EXPERIENCE & LEADERSHIP

Associate Intern   *Karani Asset Management | 2025 – Present*
- Evaluated ways artificial intelligence could enhance the firm's investment process, including applications in market sentiment analysis, portfolio monitoring, and internal workflow automation.

Codificar Inc. – President & Founder   *Nonprofit | 2023 – Present*
- Founded and lead a 501(c)(3) providing free Java, Python, and competitive programming instruction; built a multi-tier curriculum and managed a team of peer tutors.
- Taught 30+ middle & high school students and mentored a competitive programming team to 1st in NJ at the ACSL All-Star Senior Division.

Technology Intern   *Chibitek | Jul. 2025 - Present*
- Monitored and maintained client IT environments to maximize uptime; diagnosed and resolved network, system, and software issues while managing cloud services (migrations, secure storage) with industry-standard RMM tools.
- Created client-facing and internal process guides; contributed to team initiatives that streamlined operations and improved reliability/performance.

Data Science Club – President   *Bergen County Academies | 2023 – Present*
- Launched a schoolwide data-science program with hands-on workshops and challenges; built partnerships with university researchers and national nonprofits for mentorship and industry exposure.
- Led peer-teaching on Pandas, NumPy, and visualization; organized internal competitions and case-study analyses.

Journal of International Research in Medical and Pharmaceutical Sciences   *Research | 2024*
- Published a research paper on Assessing Local Sources for PM2.5 in the NY Metro area using Conditional Probability Function Analysis.
- https://www.journalresearchhs.org/_files/ugd/ebf144_b1857e9968904942baabed016e618e89.pdf

JSR Journal   *Research | 2023*
- Researched and authored a manuscript applying the Kolmogorov–Zurbenko (KZ) filter to analyze long-term PM2.5 trends in New Jersey; https://www.jsr.org/hs/index.php/path/article/view/4393

Counterspell Bergen – Lead Organizer   *Hack Club Event | Nov. 2024*
- Founded and led Counterspell Bergen, a regional Hack Club game jam with 50+ attendees; designed and launched the official site, later highlighted by Columbia Engineering Outreach.
- Secured $1,000+ in sponsorships to fund venue, prizes, and technical resources; coordinated logistics and partner outreach.

Columbia Science Honors Program – Scholar   *Columbia University | 2022 – Present*
- Selected through a highly competitive application process (acceptance rate <10%) to participate in Columbia University's weekend STEM enrichment program.
- Completed advanced coursework in theoretical computer science, neuroscience, and applied mathematics under Columbia faculty.

Cooper Union STEM – Linear Algebra Scholar   *Cooper Union Summer Program | Summer 2024*

- Studied matrix theory, linear transformations, and eigenvector applications as part of an engineering-focused linear algebra cohort.
- Applied mathematical modeling to solve real-world engineering problems in collaborative team settings.

PROJECTS & ACTIVITIES

- **Wolfram Summer Research Program:** Generating Realistic Cities with Perlin Noise: Conducted research on procedural generation using Perlin noise to model realistic city layouts, applying computational methods to urban design and simulation.
- **Developing an Automated Spectrophotometer Using Arduino Microcontroller:** Developed spectrophotometer using RGB LEDs, LDR sensors, 3D-printed cartridge, and Arduino Mega; implemented automated wavelength selection and calibration software.
- **Volunteer Services – 700+ Hours -** LSC/MoMath/YCFL/Chodae Church: Volunteered across STEM, civic, and faith communities: Liberty Science Center (hands-on demos, exhibit guiding); MoMath (interactive math activities, program support); Youth Council of Fort Lee (organized Color Run, civic outreach); Chodae Church (youth praise-team drummer).
- **Capture The Flag (CTF) Club – Leader:** Led the school's cybersecurity CTF team, coaching peers in ethical hacking (network, cryptography, binary exploitation) and placing top 3 in school-wide competitions.
- **Tennis – Junior Varsity Captain:** Coordinated practices, led strategy, mentored new players; competed in regional league matches and trained alongside varsity.
- **Rock Climbing – Competitive Youth Team Member:** Competed in local/regional bouldering and sport events; trained 3x weekly under professional coaching to build strength, endurance, and technique.
- **Liquiboard: Research and Development of Dynamic Error-Correcting Keyboard App:** Built Liquiboard, an ML-driven Android keyboard that learns tap patterns and dynamically adjusts key borders/sensitivity to reduce errors and improve accuracy.
- **Congressional App Challenge:** Designed two apps: an intermittent-fasting planner and an AI news summarizer that turns major-outlet headlines into kid-friendly explainers to foster civic awareness.
- **Columbia Competitive Programming Camp – Participant:** Selected for Columbia's two-week competitive programming intensive, focusing on advanced algorithms (graphs, DP) and collaborating with college students on timed, contest-style problem sets.
- **BCA Expo:** Attended Bergen County Academies Science Expo to present the project for *Developing an Automated Spectrophotometer Using Arduino Microcontroller*.

AWARDS & HONORS

AP Scholar with Distinction	2025
STEM Light House Challenge – 2nd place	2023
National Honor Society (NHS) Member	2024 – 2026
Congressional Award – Gold certificate	2024
Congressional Certificate of Appreciation – YCFL	2023 – 2025
President's Volunteer Service Award	2023
American Computer Science League (ACSL) All Star Senior/Intermediate, Gold Medal	2023
Bergen County Academies Science Olympiad, 2nd place	2022
USA Computing Olympiad (USACO) Platinum level	2022 – 2023
Veterans of Foreign Wars (VFW) Voice of Democracy County winner	2022 – 2023
Bergen Science Fair, 3rd place & Broadcom Coding with Commitment Award	2022
Scholastic Art & Writing Award – Silver Key	

CERTIFICATIONS

Java SE 8 Programmer I (Oracle certification for Java SE 8 - 1Z0-808)	2024
The Coding School – Artificial Intelligence	2023 – 2024
The Coding School – Machine Learning	2024
PCEP Certified Entry-Level Python Programmer	2023
AWS Practitioner	2022
Diplomas de Español como Lengua Extranjera (DELE: A1 & A2)	2021
Microsoft Office Certification (MOS: Excel, Powerpoint, Word)	2020
Taekwondo Black Belt 2nd dan	2020