

NILANSH DEY GHOSH

EDUCATION

- **Archbishop Mitty High School (AMHS), San Jose, CA** (High School Graduation: May 2024)
Academic GPA: 4.5 (Weighted Cumulative Academic GPA)
AP/Honors Courses: AP Statistics, Linear Algebra and Multivariable Calculus Honors, AP English Language and Composition, AP Economics A/B (Micro and Macro), AP Physics C: Electricity & Magnetism, AP Calculus BC, AP World History, AP English Literature and Composition, AP Computer Science A; AP Physics C: Mechanics; AP Calculus AB, AP US History, American Literature Honors, Chemistry Honors, Biology Honors, Pre-Calculus Honors.
- **ACT:** 35 (English: 35, Science: 35, Math: 35, Reading: 33)

INDEPENDENT VENTURES & LEADERSHIP

- **'Forward Front' Founder/CEO/Lead Developer/Sales Exec.** Forward Front is a startup focused on improving the digital presence of small businesses. Initially created to help struggling businesses during Covid times. Now expanded to support 125+ clients in 11 states/ 4 countries. Working with clients on their website development, digital marketing, online branding & SEO (Search Engine Optimization). Lead and teach employees in web dev and sales calls. Website: www.forwardfront.org
- **'Attentra' Founder/Lead Developer/Head of Marketing.** Attentra is a Unity & C#-based computer game to improve attention span of special-needs children. Lead a national team of 5 programmers to develop the video game. Collaborate with industry experts, county officials, 33 national and International special-needs organizations with 1500+ students.
- **High School Computer Science Club: President/Dev-Team Founder/Game Development Lead.** Leading over 100+ members of the club; Organize workshops, guest speakers & meetings. Teach 14 students in game development. Oversee 16 peers in coding school platform app & dance ticket app.
- **Sports-Tech/Business Blog on Medium.com:** Authoring a sports blog where I write on topics regarding the business, analytics and behind the scenes aspect of many top sports leagues. (Published in [Medium.com/@Nilansh](https://medium.com/@Nilansh)). Grew viewership to 15,000+ monthly with 200,000+ total views.
- **Valley Water Youth Commissioner, Vice Chair:** Selected as one of the 12 Valley Water Youth Commissioners in the Bay Area: Co-Leader of the Creek Stewardship Group; Secretary of the Youth Citizen Science Network. Produced 3 films to engage youth.
- **Youth Advisory Council, San Jose District 6, Vice Chair:** Started as Website Lead. Proposed vaping tax policy to mayor.
- **High School Math Club, Secretary:** (Grade 11, 10, 9).
- **Student Government: High-School Class Representative** (Grade 9); **School Vice President** (Grade 8).

INTERNSHIPS

- **Research Intern:** for Prof. Alexander Adams, Georgia Institute of Technology, Atlanta. (Grade 11, 12)
- **Teaching Assistant:** for AP Computer Science Class of Ms. Alexis Jefferson, Archbishop Mitty High School, San Jose. (Grade 12)
- **Software Engineering Intern, Relayrile:** Relayrile is a logistics network company helping the supply chain move – helps truckers stay close to home. Designed backend/frontend components & resolved bugs using Javascript library React. Worked with databases & APIs.
- **Campaign Intern, Media Design & Technology Team for US Congress Candidate:** Calling senior citizens to help with grocery shopping, picking up medicine, etc. during Covid-19 pandemic; Canvassing - dropping campaign flyers at houses throughout the Bay Area; Phone banking for Rishi Kumar - talked with voters across the Bay Area; Designed campaign posters/flyers with Media Arts team; Participated in Hackathon to promote youth empowerment - coded a project called 'Helping Government focus on Less Employed Areas in the United States during times of Covid'.

RESEARCH & PROJECTS

- **An AI Fencing Recommender using Cloud Technology and IoT:** Research with NYU Prof. Jean-Claude Franchitti. Research project on developing Intelligent Autonomous Networked (IAN) solutions using cloud-based machine and deep learning. Created a recommender system capable of analyzing opponent moves through deep learning and providing feedback to a fencer. Utilized Microsoft Azure, Docker & Python libraries. Paper published (See side notes).

PUBLICATIONS:

- **"AI Fencing Recommender using Cloud Technology and IoT"**, Nilansh Dey Ghosh, Oliver Zheng, Tony Xiao, Scholarly Review, Issue #3, Fall 2022, Page 6.
- **Sports Business Blog:** [Medium.com/@Nilansh](https://medium.com/@Nilansh)
- **High School Newspaper:** News section writer.
- **America Library of Poetry** – Poem selection, June 2020: "Anger"

PROGRAMMING / CODING:

- GitHub: [ndg24 \(Nilansh Dey Ghosh\) \(github.com\)](https://github.com/ndg24)
- C++, Java, R
- Python, Lua, JavaScript
- HTML, CSS, SQL, React
- IDEs: VS Code, PyCharm, IntelliJ

HONORS & AWARDS:

ACADEMICS & SCHOLARSHIPS:

- **2024 Coca-Cola Scholar Semi-finalist** - 1 of 1,514 selected from 103,800 applicants (1.45%).
- **Principal's Honor Roll** (Grades 9-11)
- **Mitty Undergrad Award** – AP English Literature

COMPUTER SCIENCE & ROBOTICS:

- **USACO (USA Computing Olympiad) Gold Division.** (1 of 600 nationwide).
- **FRC Robotics Awards:** Autonomous, Innovation in Control, Region Finalist.

MATH & SCIENCE COMPETITIONS:

- **AIME Qualifier** in AMC-10 (Grade 10)
- **STEM Recognition 2020** (Synopsis Science Fair) by Mayor of the City of San Jose. (Grade 9)
- **California Math League** (Grade 9) – Perfect Score.
- **Certificate of Achievement in AMC-10** (Grade 7)
- **Math Kangaroo:** National Rank: 3 (Grade 7); National Rank: 19 (Grade 6)
- **AMC-8:** Honor Roll; Certificate of Outstanding Achievement.
- **JH-CTY (Johns Hopkins Center for Talented Youth):** Invited to Johns Hopkins SET (Study of Exceptional Talent) program. SAT-Math: 760/800 (GRAND HONORS in Grade 7)
- **MOEMS (Math Olympiad) & California Math League** (Grade 8, 7) 1st place in School.

BUSINESS & LEADERSHIP:

- **Wharton Sports Business Academy Award, 2022:** 3rd place Culminating Project among 28 teams and 90 students at Wharton Global Youth Program.
- **KLA Innovation Challenge 2021:** Placed 5th amongst 20+ teams nationwide (Business Entrepreneurship)

- **Low-cost/Equitable Mobile System for Fetal Health Monitoring:** Research project with Georgia-Tech Prof. Alexander Adams on developing a low-cost/equitable mobile system for fetal health monitoring to reduce stress.
- **Mental Health Chatbot (Natural Language Processing):** Research Internship with Princeton University Student Sriram Hathwar. Deployed chatbot technologies to answer queries for patients, like the ELIZA chatbot therapist. Implemented the chatbot model for mental health using NLP & RNN methods.
- **Finding the Limits of AI to Solve Elementary and Middle School Mathematics Using Neural Network Models:** Independent research project. Developed and experimented with AI models as described in a 2019 paper from Google's DeepMind on 'Analyzing Mathematical Reasoning Abilities of Neural Models.' Experimented with Transformer, LSTM, BERT and RNN models.
- **Covid4All in Def Hacks 2020 Hackathon:** Designed and coded a website during the Def Hacks 2020 Hackathon. Fun Covid-related games to simplify people's understanding of Covid-19.

Personal Programming Projects (Available in GitHub):

- **DrawBot:** Making and programming a robot to move and draw using Arduino sketch.
- **AI Flappy Bird:** Coded an AI using NEAT-Python to play a Flappy Bird game.
- **Atari Breakin:** Programmed a game similar to Atari Breakout with Lua and Love2D
- **Aim Trainer:** Using Pygame, made an aim trainer with different modes and a clean UI.
- **Snake:** Programmed the classic Snake game using Pygame and Python.

EXTRACURRICULAR COURSES

- **Wharton Sports Business Academy (Wharton Global Youth Program):** Program in Sports Analytics and Business Initiative. Project: Proposed a College Level NIL (Name Image and Likeness) Deal including Khan Academy and JR Smith; includes pay, reasoning, and logistics of the deal.
- **Introduction to Game Development (CS50g), Harvard University, EdX:** Explores principles of 2D and 3D graphics, animation, sound, and collision detection using frameworks like Unity and LOVE 2D, as well as languages like Lua and C#.
- **Introduction to Computer Science (CS50x), Harvard University, EdX:** Topics include abstraction, algorithms, data structures, encapsulation, resource management, security, software engineering, and web development. Problem sets inspired by real-world domains of biology, cryptography, finance, forensics, and gaming.
- **Business Foundations Specialization, Wharton Online, Coursera:** Completed 'Introduction to Marketing' and 'Introduction to Financial Accounting'.
- **Data Visualization Methodology and Tools (CIS 64G):** De Anza College, Cupertino. Dual-Enrollment. Introduction to the strategies and technologies used in business intelligence reporting and dashboards for making data-driven decisions.
- **The Modern React Bootcamp (Hooks, Context, NextJS, Router), Udemy:** Course on React, the most popular JavaScript library, from the very basics up to advanced topics.
- **R Programming A-Z™: R For Data Science, Udemy:** Course on Programming In R And R Studio. Data Analytics, Data Science, Statistical Analysis, Packages, Functions, GGPlot2.
- **C++ Programming - From Beginner to Beyond, Udemy:** Obtain Modern C++ Object-Oriented Programming (OOP) and STL skills.
- **Advanced Biotechnology. UC Berkeley Academic Talent Development Program (UCB ATDP):** Explore the essential principles and techniques of molecular biology and its applications.
- **Crafting the Essay, Johns Hopkins CTY:** College-level writing course using personal essay to explore narration, description, and reflection.
- **Other Courses:** 3D Game Design with Unreal Engine 4; Artificial Intelligence and Machine Learning with TensorFlow and Python; Introduction to Web Design; Learning Java (LinkedIn Learning); Advanced Debate.

ATHLETIC ACTIVITIES & PERFORMING ARTS

- **High School Soccer with Junior-Varsity & Varsity:** Captain, Junior Varsity Soccer.
- **Competitive Soccer with LFC (Liverpool Football Club) Bay Area Academy (Now SURF Academy):** Competed in club soccer for 12 years.
- **Theater / Acting:** Performed in Twelfth Night in AMHS Fall 2020 Shakespeare Festival.
- **Guitar (Electric and Bass):** Played lead guitarist for a youth band & also played bass guitar when needed.

- Accepted to the LaunchX Entrepreneurship Summer Program, 2022.

ATHLETICS:

- **High School Soccer:** JV MVP/Sportsmanship award.
- **Soccer Tournament Awards:** (With Liverpool FC Bay Area Academy / SURF Academy)
Silver Medal in MVLA Cup, Fall 2022;
Silver Medal in Santa Cruz Breaker's Cup, Spring 2022;
Gold Medal in MVLA Fall Cup in 2018 and 2019;
Gold Medal in 2018 AJAX tournament;
Division winner in NorCal Premier League, Fall 2018.

COMMUNITY SERVICE:

- **2021 Junior League of San Jose Volunteer Award.**
Nominated by WVCS.
- **St. Francis of Assisi Christian Service Award (2020-2021):** For over 100 hours of service in one school year.

HONOR SOCIETIES:

- National Honor Society Member
- California Scholarship Federation Member

VOLUNTEER EXPERIENCE:

- **Event Lead & Food Pantry Volunteer, West Valley Community Services (WVCS):** Chefs of Compassion (Annual Fundraising) Media Team; Seeds of Compassion Event Lead in 2020 and 2021 – helping others to make cards and masks; Food Pantry, Tech help, Back to School Events, Holiday Gift of Hope Event, etc.
- **Buddy & Coach, AYSO VIP Volunteer Program/E-Soccer:** Assisted children with special needs to play soccer.
- **Principal Tutor, Peru Project:** Taught English remotely to low-income Spanish speaking kids in villages of Peru, Ecuador, and Chile. Taught & developed curriculum for 200+ kids. Raised \$4K to buy internet routers for them.
- **Math Mentoring:** Mentored Stratford Middle School Students on Algebra, Adv. Algebra, and Geometry.
- **Cornerstone:** Youth campus ministry group.