

Nathan Tatsuta

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EDUCATION

University of California, San Diego, La Jolla, CA

Jun 2028

- B.S. in Electrical Engineering; B.A. in Music — Technology | GPA: 4.00
- Coursework: Machine Learning, Controls, Digital Signal Processing, Computer Music, Object-Oriented Programming, Probability/Statistics, Linear Algebra

EXPERIENCE

UC San Diego ECE Department, Summer Research Intern

Mar 2026—Present

- Studying several reinforcement learning architectures and algorithms
- Plan to contribute to larger project involving control of PDEs

UC San Diego ECE Department, Instructional Assistant — Programming in C

Mar 2025—Present

- Held tutoring sessions and graded exams for **300+** students
- Wrote **100** test cases in Python and C for new programming assignments

TritonBots FC, Embedded Engineer

Oct 2025—Jan 2026

- Optimized low-latency C/C++ code on STM32 and ESP32 hardware
- Translated wireless commands into electrical signals for autonomous soccer robots

PROJECTS

Applications of Federated Learning to Direction of Arrival Research

Dec 2025—Present

- Trained several federated learning models to estimate direction of arrival using MATLAB dataset, Python/Tensorflow ecosystem
- Wrote custom implementations of covariance matrix generation and non-iid data split
- Varied experiment parameters: channel/label distribution, number of clients

Bit Adder with Infrared Control

Dec 2024

- Programmed medium-scale Verilog project in Xilinx Vivado
- Physically implemented using BASYS board and IR remote
- Validated implementation using oscilloscopes and other lab equipment

Line-Following Arduino Robot

Dec 2024

- Implemented PID control using Arduino IDE
- Placed in the **top 8** of all teams for Fall 2024

ACTIVITIES

Science Olympiad at UCSD, Volunteer Coordinator

Sep 2025—Present

- Oversaw the testing and scoring of **650+** student-constructed devices
- Ensured 10+ Event Supervisors' compliance with strict testing constraints
- Presented at regional workshops for students and coaches

KSDT Radio Audio Internship

Apr 2025—Jun 2025

- Participated in recording/production, mixing/mastering workshops
- Gained hands-on experience with audio equipment and software

Herbie Hancock Institute National All-Star Peer-to-Peer Jazz Ensembles

May 2024, 2022

- Toured with celebrity jazz musicians in Rhode Island and Wisconsin
- Presented informances and masterclasses to **over 10,000** high school students

AWARDS

National Merit Scholarship Winner | Perfect PSAT score

2024

American Invitational Mathematics Examination Qualifier

2023, 2022

YoungArts National Competition Award | Jazz Piano

2023