Brighten Hayama

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Education

M.S. in Computer Science Sep 2025 – Present
University of California, San Diego *La Jolla, CA*

B.S. in Mathematics and Computer Science, Minor in Data Science Sep 2021 – Jun 2025
University of California, San Diego *La Jolla, CA*

- Cum Laude – GPA: 3.91/4.00

Experience

Machine Learning Research Jan 2024 – Present
University of California, San Diego *La Jolla, CA*

- Explored feature representations in Convolutional Neural Networks using **PyTorch**, **Matplotlib**, and **scikit-learn**, computing statistics across network layers and refining code to streamline computation-heavy experiments through serialization and modular design
- Reviewed literature on Interpretable Machine Learning and presented **OpenAI's CLIP** model, effectively communicating its vision–language alignment mechanisms and insights to the research group

Undergraduate Instructional Assistant Sep 2023 – Jun 2025
University of California, San Diego *La Jolla, CA*

- Collaborated with professors to teach and reinforce key concepts in algorithm analysis, probability, and machine learning for courses including Mathematics for Algorithms/Systems, Theoretical Foundations of Data Science, Supervised Machine Learning, Optimization Methods for Data Science, and Stochastic Processes, improving student comprehension and engagement
- Led 100+ office hours and review sessions for groups of up to 15 students, clarifying algorithm runtimes, combinatorics, graph theory, optimization, regression, and classification to strengthen student problem-solving

Software Engineer Intern Jun 2024 – Aug 2024
San Diego Supercomputer Center *La Jolla, CA*

- Collaborated in a 6-person Agile team to design and develop a Yelp-inspired social web app for university students, integrating a responsive **React** frontend with an **Express.js** and **Firebase** backend to promote affordable and accessible local experiences
- Implemented friends features, interactive post and comment systems, and a custom review submission form, enabling students to share and discover nearby restaurants and locations through peer recommendations

Projects

NBA Player Interaction Network Analysis (Link)

- Developed an evolving NBA player assist network from event-based **NBA API** data across multiple seasons
- Analyzed **centrality**, **community density**, and other metrics to quantify team chemistry and performance
- Visualized historical trends in player influence and team dynamics using **Python**, **NetworkX**, and **Matplotlib**

Nano Type Inference

- Implemented **Algorithm W** for type inference in 'Nano', a miniature **Haskell**-based language
- Designed type environment, unification, and substitution logic according to **Hindley-Milner** type systems
- Collaborated in a 4-person team to integrate independent Nano modules (pattern matching, parser, REPL)

Weather App

- Developed a weather web application using **React.js** that displays up-to-date hourly and weekly weather forecast
- Used **OpenWeatherMap API** to fetch real-time weather forecast data for any city in the world

Technical Skills

Languages: Python, Java, C, C++, JavaScript, HTML, CSS, SQL
Libraries: PyTorch, scikit-learn, pandas, NumPy, Matplotlib
Tools & Frameworks: PySpark, React.js, Express.js, Firebase, Git