

Sean Fuhrman

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Fourth-year Computer Engineering student continuing at University of California, San Diego for a master's in Data Science & Machine Learning. Over a decade of programming experience, with a focus on 2+ years in Python/PyTorch for building machine learning models. Skilled in web development (HTML/CSS/JavaScript) and well-versed in Deep Learning, Predictive Modeling, Algorithms, and Object Oriented Programming.

EDUCATION

- **University of California, San Diego** San Diego, CA
Bachelor of Science in Computer Engineering; Major GPA: 3.9; GPA: 3.77; *Sept. 2020 – Present*
 - **Relevant Coursework:** Object Oriented Programming, Advanced Data Structures & Algorithms, Computer Architecture, Probabilistic Machine Learning, Web Client Languages.
 - **Awards:** Provost Honors
 - **Extracurriculars:** Data Science Student Society, Ski & Snowboard Team

SKILLS

- **Programming Languages:** Python; Javascript; HTML/CSS; Java; C++/C; Bash;
- **Frameworks/Packages:** PyTorch; NumPy; Pandas; Matplotlib; scikit-learn; Git; Jupyter; React; Node.js;

EXPERIENCE

- **Art of Problem Solving** San Diego, CA
Software Engineering Intern *June 2023 - August 2023*
 - Implemented 50+ printable engines in React with Node.js backend, automating the conversion of online math problems into printable formats.
 - Led a comprehensive exploration of prompt engineering techniques, successfully integrating Large Language Models for automatic language translation.
 - Produced a working proof-of-concept demonstrating the effectiveness of large language models in language translation, while preserving custom mark-up language syntax.
 - Collaborated with design and development teams to ensure the successful integration of print functionality.
- **System Energy Efficiency Lab - University of California, San Diego** San Diego, CA
Research Assistant *July 2022 – Present*
 - Assisted with research on hyper-dimensional computing algorithms and its use for energy-efficient processing-in-memory machine learning.
 - Authored research paper on combining metric learning with hyper-dimensional computing algorithm to increase model accuracy and error robustness.
 - Developed PyTorch model to simulate machine-learning algorithm running on error-prone analog hardware.
 - Created non-binary hyper-dimensional computing algorithm utilizing differentiable soft quantization techniques to ensure accurate gradient descent.

PROJECTS

- **Shazam 2.0** github.com/jasminelo2020/shazam2.0
Data Science Student Society
 - Developed a Convolutional Neural Network (CNN) based music genre classification model trained on the Million Song Dataset.
 - Achieved an exceptional accuracy of 99.6% on a dataset of over 200,000 songs and 15 genres.
 - Utilized PyTorch to build efficient training pipeline, incorporating hyperparameter tuning and train/test/validate split to prevent overfitting
 - Presented our methods and findings at project showcase; poster available [here](#).
- **Personal Website**
 - Designed and programmed my own resume website at seanfuhrman.com
- **Room Automation System**
 - Designed, prototyped, and debugged microcontroller system designed to act as “assistant” via voice commands
 - Capable of controlling lights, telling the weather, and playing music