

EDUCATION

University of California Santa Barbara | *B.S. Computer Engineering*

Graduating: Jun 2024

Emphasis on Machine Learning and Computer Programming

GPA: 3.4

Relevant Courses: Data Structures and Algorithms (ECE130), HRDW/SFTW Interface (ECE153A-B), Mobile Embedded Systems (ECE150), Machine Learning Design (ECE157A-B), Computer Vision (ECE181), Deep Learning (ECE180), Digital Design (ECE152A), Senior Capstone Project (ECE189A-B-C)

WORK EXPERIENCE

KLA | *Machine Learning Software Engineering Intern - BBP*

Milpitas, CA | June-Sept 2023

- Engineered a machine-learning layout recognition autoencoder, enhancing BBP (Broadband Plasma Optical Inspection) Nuisance Filtering (detecting functional defects) and SEM sampling (E-Beam verification), resulting in 30% reduction in number of clusters when compared to DBG2 (Design Based Grouping) on IBM CAD Test and Samsung GMK dataset.
- Created a custom framework, clustering using extracted latent image features through convolutional layers to improve defect detection and classification – allowing for modular features to be learnt for different datasets.
- Leveraged HDBSCAN for precise clustering of latent features, validating their usability using silhouette scores.
- Tailored the system to diverse BBP hotspot images by training on unlabeled data, for versatility in future applications.
- Established a benchmarking method using Jaccard score and ground truth, enabling robust comparison between current and future DBG classification techniques.

Synopsys | *Application Development Technical Summer Intern*

Santa Clara, CA | June-Sept 2022

- Conducted performance analysis and developed novel modifications to a branching process flow through algorithm optimization, resulting in a reduction of server load processing time from 10 minutes to 2.5 minutes.
- Responsible for remodeling cross-functional integration and data synchronization between finance, payroll, and ERP system to increase employee efficiency and sync data between internal and external process flows.
- Automated contractor onboarding process saving 2,200 employee hours annually, improving system efficiency for over 2,000 users using Python and Java.

PROJECT EXPERIENCE

Chromatic Tuner FPGA Development

Jan 2023

- Developed a tuner that identifies musical notes with high accuracy, focusing on optimal sample rates for Fast Fourier Transforms across various octaves.
- Implemented a GUI LCD display using a QP-nano based Hierarchical State Machine, integrating peripherals like rotary encoders and onboard pushbuttons for user interaction.
- Enhanced the default FFT code to achieve results in <30ms by constructing sine and cosine lookup tables, dynamically adjusting sample sizes, and determining optimal FFT parameters for accurate frequency identification.
- Utilized a speaker to play frequencies ranging from 65 Hz to 4500 Hz, ensuring accurate frequency detection, minimal noise interference, and correct octave convergence using various testing modes.

Deep Learning Emotion Recognition

Mar 2022

- Developed a CNN-based emotion recognition system using PyTorch, achieving 82% accuracy in identifying 7 distinct human emotions from facial expressions.
- Crafted an intuitive MATLAB GUI and enriched the training dataset through web scraping with Python scripts.

TensorFlow Predictive Analysis Stock Market Trend

Dec 2021

- Developed a predictive model using sentiment analysis with TensorFlow framework.
- Created GUI visualization of sentiment analysis data with 10,000+ news articles.
- Utilized News APIs to relate recent company news with company performance and effect on stock.

SKILLS

Certifications

Programming Languages: Python, C++, C
Tools & Platforms: PyTorch, TensorFlow, AWS, Firebase, Boomi, Git, VS Code, Visual Studio, Azure, IntelliJ

Neural Networks and Deep Learning | *deeplearning.ai*

Jan 2022

Boomi Professional Developer Certification | *Boomi Education*

Aug 2022