

# ETHAN CHENG

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## EDUCATION

### Duke University

*M.S. Computer Science*

- Cumulative GPA: **3.83**

• Coursework: Computer Security, AI Security and Privacy, NLP, Reinforcement Learning, Cryptography, IoT, App Development

**Durham, NC**

*Expected 2027*

### University of California Santa Cruz

*B.S. Computer Science*

- Cumulative GPA: **3.9/4.0**; SAT score **1560/1600**

• Coursework: Data Structures and Algorithms, Computer System and Assembly Language, Programming in Data Science and AI, Computer System Design, Web Applications, Machine Learning, Distributed Systems, Networking and Internet

**Santa Cruz, CA**

*April 2025*

## PROJECTS

### Gender/Racial Bias in Facial Classification Research

- Created and curated a facial dataset incorporating gender and race features using NumPy and Pandas
- Analyzed the impact of model architecture and dataset composition on bias in gender classification across racial groups
- Trained and evaluated multiple CNN architectures using PyTorch-based pipelines, identified factors contributing to misclassification, and implemented techniques such as Mixture of Experts and ensemble methods to reduce classification bias

### Network Security Lab: Penetration Testing and Packet Filtering

- Conducted network reconnaissance and penetration testing on a mock network using Nmap to assess vulnerabilities
- Developed and implemented packet-filtering rules for an interior router on a screened subnet, analyzing benign and malicious traffic in Wireshark to prevent data leakage and restrict access to sensitive files

### Distributed Key-Value Store

- Designed and deployed a multi-node, RESTful distributed key-value store using Docker and Python Flask, implementing strong, eventual, and causal consistency models with sharding for scalability
- Simulated network and node failures to test system reliability and consistency through extensive read, write, and delete operations under varying fault conditions

### Event Suggestion/Scheduling App

- Collaborated in a team of four to develop a React Native app using TypeScript, Node.js, and Expo Go, integrating Ticketmaster and Duke's Event APIs to curate personalized event recommendations based on user preferences, location, and calendar availability
- Utilized Expo Router for structured navigation and npm for dependency management, implementing interactive map and list views for event exploration and enabling calendar synchronization to streamline event scheduling and management

### Diabetes Prediction using Clinical Data

- Analyzed clinical datasets to predict diabetic, prediabetic, and non-diabetic status using machine learning models
- Performed data cleaning, normalization, and feature selection through correlation and feature importance analysis
- Built and compared linear regression and decision tree classifiers using pandas, NumPy, and scikit-learn to assess performance and interpret key predictive factors; evaluated models using confusion matrices and F1 scores

## LEADERSHIP/TEACHING EXPERIENCE

### Skit Committee Chair

*UCSC Chinese Student Association*

**Santa Cruz, CA**

*December 2021 - February 2022*

- Directed and organized the production of a short cultural film to be played at the association's annual lunar new year festival

### Front Ensemble Band Instructor

*Foothill High School Marching Band*

**Pleasanton, CA**

*August 2021 - September 2021*

- Led 15 students during week long, intensive band camp training and instructed new members in development of basic mallet skills

### Abacus Teaching Assistant

*Yellow River Chinese School*

**Fremont, CA**

*September 2017 - November 2019*

- Developed lesson plans and hosted weekly classes on various abacus operations and techniques; focused on small pod discussions

## SKILLS & INTERESTS

**Software:** advanced [Javascript, C, C++, Python (pandas, matplotlib, pytorch, flask), SQL, React Native]; beginner [Java, assembly]; Microsoft/Google Suite; Docker

**Soft Skills:** communication, teamwork, organization, patience