Mehul Gandhi

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EDUCATION

University of California, Berkeley Expect Grad. May 2024
B.A Computer Science Berkeley, CA

RELEVANT COURSEWORKS

- Structure and Interpretation of Computer Programs
- Efficient Algorithms and Intractable Problems
- Machine Structures
- Data Structures and Programming Methodology
- Principles and Techniques of Data Science
- Computer Security
- Database Systems
- Discrete Mathematics and Probability Theory

TECHNICAL SKILLS

Languages: Python, Java, C, SQL (PostgreSQL), x86 Assembly Language, HTML/CSS, JavaScript, React.js, Node.js, Go
Tools/Frameworks: Git, NumPy, Pandas, Jupyter, Heroku

LEADERSHIP AND EXTRACIRRCULAR ACTIVITIES

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERING
ACTIVITIES DIRECTOR January 2022-Present

- Plan biweekly social events for the IEEE and EECS community of 150+ members, host collaborative events with other engineering clubs, and advertise events on social media

EECS DEPARTMENT
CS10 COURSE READER August 2022-Present

- Grade and provide feedback for homework, project assignments, and exams for 250+ undergraduate students
- Tutor and mentor students with limited computer science exposure through office hours, online forums, review sessions, and supplemental material to help build intuition for algorithmic thinking

CS10 ACADEMIC INTERN January 2022-Present

- Support biweekly lab sections of 30+ undergraduate students to help with lab assignments and to reinforce course material (e.g., trees, recursion, asymptotic analysis, OOP, etc.)
- Develop new lab assignments using Git and HTML/CSS, and program autograder test cases

PROJECTS

BALANCE October 2022
Cal Hacks Project

- Created a web application in a team of 4 using React.js, Bootstrap, Jupyter, and Node.js, where users upload grocery shopping receipts to earn cryptocurrency coins based on how well their hauls meet nutritional recommendations
- Converted a grocery receipt into machine-readable text using Tesseract, an Optical Character Recognition API
- Designed an algorithm to award users cryptocurrency coins using a food training dataset to classify foods into one of the six food categories and utilized Web3.js and the Solana API to create, sign, and send transactions to the network

DISCORD BOT January 2022- March 2022
Personal Project

- Programmed a Discord bot using Python, asynchronous programming, object-oriented programming, and PostgreSQL to create user interactive games, which utilizes several APIs from sites such as YouTube and Google Images
- Automatically deployed the bot using Heroku and GitHub

NUMC August 2022
CS61C: Machine Structures – UC Berkeley

- Implemented a simple version of NumPy for a Python-C interface
- Incorporated vectorization with SIMD instructions, OpenMP to parallelize loops, cache blocking, squared exponentiation, and manual loop unrolling for performance speedup on complex matrix operations

GITLET November 2021
CS61B: Data Structures – UC Berkeley

- Built a version control system in Java that mimics some of the basic features of Git such as add, commit, remote push, remote pull, merge, checkout, which utilizes a tree-based data structure that employs SHA-1 encryption
- Utilized extensive error checking and handling, file management, and serialization

ENIGMA September- October 2021
CS61B: Data Structures – UC Berkeley

- Replicated the WWII German encryption machine "Enigma" by building a generalized simulator that can handle numerous different descriptions of possible initial configurations of the machine and messages to encrypt or decrypt
- Built in Java and worked with Java's String, HashMap, ArrayList, and Scanner data structures to handle string manipulation, data mapping required, and file reading for encryption and decryption