

ALEX C. ZAHARIA

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EDUCATION

California Polytechnic State University - San Luis Obispo (Cal Poly)

September 2020 - June 2024

Bachelor of Science in Computer Science, Dean's List, Major GPA: 3.1

Universidad Carlos III - Madrid, Spain

September 2022 - December 2022

Study Abroad, Fall 2022, GPA: 3.6

SKILLS

Soft: Leadership, Entrepreneurship, Adaptability, Communication, Problem-Solving, Creativity, Organization

Programming: C, Java, Python, HTML, CSS, Javascript, React, Git, Unix, APIs, RISC-V, ARM, LC3

Software Engineering: OOP, Full Stack, Agile, CI/CD, Unit Testing (Jest, TDD), Peer Programming, UML Diagrams, Figma Prototyping, Azure Deployment

Machine Learning: scikit-learn, NumPy, Pandas, matplotlib, Apache Spark, RDD, Apache Hadoop, MapReduce, Predictive Modeling, Exploratory Data Analysis

Database: SQL, Firebase, Supabase, MySQL, Java Persistence API (JPA), Data Pipelines, ETL Processes, Schema Design

WORK EXPERIENCE

Computer Science Tutor at Grade Potential

June 2023 - Present

- Demonstrating leadership, adaptability, and interpersonal skills by mentoring students to reach their academic computer science goals
- Designing lesson plans, study materials, and hands-on projects tailored to individual students' needs and learning styles, focusing on Java and Python, data analysis in SQL, Pandas, and R, and hardware

Software Engineer Intern at 206 Realty

June 2022 - August 2022

- Developed a Python tool for aggregating and analyzing client data, generating data driven recommendations for prioritizing client leads
- Compiled and pre-processed data from internal databases and Excel sheets to find potential clients
- Designed a prioritization algorithm that ranked client leads based on conversion likelihood

Blockchain Project Manager

April 2020 - August 2021

- Successfully launched an NFT collection on Cardano and a BEP-20 token on Binance Smart Chain, achieving a \$110,000 valuation
- Led a team of eight, conducting competitor and risk analysis, and ensuring streamlined project execution

Founder at SLO Dorm Cuts

December 2020 - August 2022

- Launched a convenient haircutting service at Cal Poly
- Utilized various marketing strategies to quickly establish a strong brand identity among students
- Designed logos, banners, business cards, and Instagram posts using Adobe Illustrator and Photoshop

SOFTWARE ENGINEERING PROJECTS

GridIron GPT

September 2023 - Present

- Full stack react development using React, OpenAI, SQL, Supabase, and Sportsdata.io API to create a hub for american football enthusiasts
- Implemented user authentication and real-time data synchronization using Firebase
- Leveraging the OpenAI API to build a dynamic search engine for football data in a SQL database
- Using machine learning models to enhance user engagement and functionality, such as a lineup optimizer, player projections, and odds predictions
- Compiling schedules, standings, and stats to deliver a complete and informative user experience

Haggle

January 2024 - June 2024

- Full stack React development utilizing Agile Sprint processes on a team of 5 to create a student-oriented online marketplace
- Created user stories, personas, UML diagrams, and Figma prototypes
- Developed and maintained Supabase database

- Implemented unit testing with Jest, TDD, and managed CI/CD pipelines for Azure deployment
- Handled user authentication (login, sign-up, password management) and OAuth integration
- Integrated TalkJS for chat feature (chat rooms and inbox)
- Collaborated with teammates through peer programming to overcome various challenges

MACHINE LEARNING PROJECTS

Predictive Modeling Tool for Real Estate Prices (In the USA)

June 2024

- Created a predictive modeling tool for U.S. home prices using various machine learning models
- Performed data preprocessing and exploratory data analysis to enhance model accuracy
- Evaluated multiple models to identify the best techniques for real estate price prediction

Exploratory Data Analysis for Insurance Policyholder Data

May 2024

- Preprocessed and cleaned the dataset by handling missing values and ensuring data integrity
- Visualized distributions and relationships using histograms, box plots, and count plots
- Performed chi-square tests and correlation analysis to find significance and relationships of features

Document Retrieval System

April 2024

- Tokenized, cleaned, and removed stop words from the document collection and queries
- Computed TF-IDF scores and cosine similarity to retrieve the top relevant documents for user queries
- Integrated and tested the system to ensure accurate and efficient document retrieval

DATA-ORIENTED PROJECTS

Jamba Juice Database Model

February 2024 - April 2024

- Outlined information needs, designed a SQL database schema for Jamba Juice, created an Entity/Relationship UML model and transformed it into SQL DDL
- Enhanced db integrity via schema refinement, lossless decomposition, and constraint preservation
- Leveraged Java Persistence API (JPA) for object-relational mapping to MySQL and writing queries

2023 Fantasy Football Quarterback Analysis

June 2023 - August 2023

- Developed ETL processes using Apache Spark, Dataframes, and SQL to analyze over 114,000 lines of weekly NFL player data from 1990 to 2022
- Created data pipelines to evaluate quarterbacks' fantasy football production, individual performance considering team dynamics, and to categorize quarterbacks in a tier list

OPERATING SYSTEMS PROJECTS

Tiny File System

June 2024

- Created a TinyFS file system in C with features like timestamps, file renaming, and directory listing
- Conducted thorough testing for file operations: opening, closing, reading, writing, and renaming files

Memory Management Unit (MMU) Simulator

May 2024

- Simulated a MMU in Python with page replacement algorithms: FIFO, LRU, and Optimal
- Translated logical to physical addresses
- Handled page faults and TLB hits with a simulated physical memory and TLB
- Tested thoroughly the reference sequences, frame numbers, and page replacement algorithms

Threading Library/Lightweight Processes

April 2024

- Developed a C API for creating and managing threads using a round-robin scheduler
- Implemented thread stack setup and context management
- Included features like thread creation, termination, yielding control, and scheduler integration

OBJECT ORIENTED PROGRAMMING PROJECT

Ocean Life Simulator

November 2021

- Built a user-friendly Java application simulating the life cycle of marine entities
- Implemented inheritance, encapsulation, and polymorphism within the class structure
- Controlled entity movement using single-step and A* pathfinding techniques

App Tracker 1.0

June 2020

- Developed a Java-based monitoring tool for tracking application use on children's computers, using Java Swing and socket programming.
- Engineered client-server interactions and automated email notifications using SMTP, enhancing parental controls and user management.
- Integrated Windows PowerShell to capture real-time activity data, ensuring accurate reporting and user-specific configuration options.