

ZAINA QASIM

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EDUCATION

University of Cincinnati, Cincinnati, OH

Bachelor of Science in Computer Science (Honors)

Graduated May 2023

GPA 3.596/4.000

Specialization: Intelligent Software Development, **Minor:** Mathematics

Achievements:

- UC Global Scholarship (Platinum)
- Dean's List (multiple semesters)
- [MHacks 13 Beta](#) (winner in 5 categories)
- [University Honors Scholar](#)

Leadership: Treasurer (Women in Technology), Meetings Chair (IEEE@UC).

Relevant Courses: Deep learning, Cloud Computing, Parallel Computing, Intelligent Data Analysis, Information Retrieval Systems, Linear Algebra, Differential Equations.

CERTIFICATIONS

IBM Machine Learning Professional Certification (6-course specialization)

Dec 2023 – Present

- Courses include - Exploratory Data Analysis for Machine Learning, Supervised Machine Learning: Classification, Supervised Machine Learning: Regression, Unsupervised Machine Learning, Deep Learning and Reinforcement Learning, Machine Learning Capstone.

Microsoft Certified: Azure Cloud Fundamentals

Jan 2023 – Apr 2023

- Concepts include Cloud Computing Fundamentals, Azure architecture and services, and Azure management and governance.

PROFESSIONAL EXPERIENCE

[Vector, Inc.](#), a B2B prospecting data platform | YCombinator startup (Full-time)

Boston, MA (Remote)

Founding Engineer (Software)

Apr 2024 – Present

- Spearheaded implementation of person-level site visitor identification with near-real time identity-resolution, leading to an exponential increase of 500% in customer base within a month of product release.
- Led the development of a parallelized web-crawler using APIFY's Crawler, Playwright and ExpressJS to scrape over 5M unique domains for relevant information accumulating over 50M signals and counting.
- Deployed the web-crawler to DigitalOcean and subsequently to AWS EC2 during the production phase to efficiently handle large-scale data acquisition, enabling the processing of 400,000 accounts daily.
- Implemented a multi-label Support Vector Machine classifier with Scikit-learn to classify account audiences (B2B, B2C). Validated using k-fold cross validation, achieving 90% accuracy (50% improvement over baseline).
- Implemented a customized DistilBERT model using Dropout and Linear layers for feature extraction, regularization, and multi-label classification across 145 categories. Integrated a Binary Cross Entropy loss function and Adam optimizer, achieving a high accuracy rate of 92% (130% improvement over baseline).
- Developed and deployed FASTAPI servers to host above-mentioned models, leveraging Docker for seamless containerization and deployment on DigitalOcean's app platform. Managed infrastructure to support high availability, handling up to 10,000 requests per hour.
- Architected and deployed end-to-end ETL pipelines using AWS Glue (Spark) and Aurora PostgreSQL RDS, including database optimization to allow for processing of 1TB monthly and 20GB daily datasets.

[Blue Innovations Group](#), an electric-boat startup (Full-time)

St. Petersburg, FL

Software Development Engineer

May 2023 – Jan 2024

- Developed the HMI management software for electric boats' infotainment systems (similar to Tesla's touchscreens). Collaborated with multi-disciplined senior engineers to deploy several full-stack features.
- Fine-tuned polynomial regression model for estimating the boat's real-time range and runtime using sensor data aggregates. Rigorously tested for physical world scenarios, achieving accuracy of 85% in preliminary lab tests.
- Independently engineered a real-time, location-specific dashboard to provide intuitive visualizations for relevant weather phenomena. Detailed evaluation of APIs ensured 95% reliability despite budget constraints.

- Implemented both server-side (Go gin-gonic) and client-side (React, TypeScript) REST APIs for seamless transmission of sensor and control signals between the boat control unit and the application user interface.
- Architected system design for unit conversion to handle multiple data sources, data formats, and high-volume traffic with near-zero performance degradation.
- Ensured project quality via unit, integration, manual, and end-to-end tests using Vitest and Go testing packages.

Infinera Corporation, an optical networking products manufacturer (*Full-time Internships*)

San Jose, CA

Firmware Engineering Co-op / 2 consecutive semesters

Jan 2022 – Aug 2022

- Led a team of 5 interns in developing a Flask based applicant tracking system. Oversaw key project milestones, status updates, communications to management, and software development cycle using Atlassian tools.
- Revamped legacy code in Java Swing-based database editing GUI tool to facilitate multi-database support allowing for custom data types and database structures. Simultaneously resolved 7 critical issues.
- Automated a 15-step firmware building and deployment process to a one-line parameterized unix-style CLI tool using Python with robust failure handling measures, cutting engineers' daily testing workload by at least an hour.

ASIC Design Engineering Co-op / 3 non-consecutive semesters

Aug 2019 – Apr 2021

- Improved optical hardware management system by delivering 8 different tools and test case implementation.
- Significantly optimized chip validation workflow by automating test script generation and developing a System Verilog constraints parser. Saved 75+ hours of manual testing effort and increased test coverage by at least 20%.
- Optimized ASIC library analysis tool through multi-processing, reducing runtime from 2 hours to 2 minutes.
- Refactored post-route health check and hierarchy analyzer tools, reducing 300+ lines of code and 4 bugs.
- Boosted productivity across Infinera's ASIC teams globally by delivering a full-stack scheduling platform for reserving emulation boards using Python Django, AdminLTE, and Apache.
- Delivered software for handling, testing and logging multi-level interrupts, ensuring system reliability and stability.

TEACHING AND MENTORING EXPERIENCE

HACKTX24, University of Texas - Austin

Austin, TX

Hackathon Mentor

Nov 2024

- Provided technical mentorship to undergraduate student participants in backend development, 3rd Party API integrations, database design and optimization, and LLM prompt engineering (GPT-4, Claude 3.5 Sonnet).
- Coached teams in project scoping, feature prioritization and pitch preparation for effective project delivery.

Department of Engineering Education, CEAS, University of Cincinnati (*Part-time*)

Cincinnati, OH

Teaching Assistant for Engineering and Design Thinking II

Jan 2020 - April 2020

- Led classroom activities and group discussions regarding multidisciplinary engineering tools and topics such as Bayesian Statistics, Introductory Statics and Dynamics, Python, MATLAB, and LabVIEW.
- Conducted group and one-on-one tutoring sessions for coursework and projects, graded papers and exams.
- Tutored students in other freshman level courses including calculus I & II, physics I, and chemistry I.

Hughes STEM High School (*Part-time*)

Cincinnati, OH

Assistant Tutor

Dec 2018 – Apr 2019

- Tutored 8th-12th grade students in mathematics, physics, and chemistry at Hughes STEM High School.
- Guided students through college applications, including essay writing and SAT/ACT prep.

PROJECTS AND RESEARCH

TuneMe, University of Cincinnati

Cincinnati, OH

Undergraduate capstone project for generating personalized Spotify playlists

Aug 2022 - Apr 2023

- Conceptualized and implemented a personalized music recommendation and search engine with a lightweight web application, allowing users to define their own "similarity" criteria.
- Built and trained an SVM (Support Vector Machine) classification model with CountVectorizer to classify song themes based on lyrics.
- Implemented recommendation algorithms using RBF kernel similarity, cosine similarity with TF-IDF vectorization, and data cleaning techniques to provide dynamic song suggestions based on user-defined parameters such as artist, genre, and themes.

Hackathon project for automating the job-application process

Aug 2020

- Developed the resume parsing logic for extracting relevant sections using NLTK and Spacy.
- Implemented the web crawler using BeautifulSoup4 for finding jobs and combined it with fuzzy matching finding relevant jobs further filtered using cosine similarity metric for applicant resume and short-listed jobs.
- Awarded Best Educational Hack, Best COVID-19 App (Google Cloud), at Wolfram Award for Top 30 Hacks, Best Automation Hack by Invensity, and Best Domain Registered with Domain.com - USA ONLY.

SKILLS

Programming Languages: Python, Go, C++, Java.

Web Development: HTML/CSS, Tailwind, REST APIs, React, JSON, TypeScript, SolidJS, Electron, Flask, Django, Gin.

Cloud Technologies: AWS (EC2, Lambda, Aurora RDS, Glue).

OS Platforms: Linux (Ubuntu, Red Hat), Windows, Mac OS.

Database: PostgreSQL, MongoDB, Redis.

Machine Learning: Scikit-learn, Keras, PyTorch, TensorFlow.

Tools: Git, Jira, Confluence, Bitbucket, Figma, Adobe Creative Suite, Visual Studio, VS Code, PyCharm, MS Office.

Containerization: Docker.