

ZUBAIR QAZI

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EDUCATION

University of California, Riverside
B.S. Computer Science
M.S Computer Science

September 2018 - March 2023
Final GPA: 3.88 - *Magna Cum Laude*
Current GPA: 3.88

Honors Chancellors Honors List, Babbage Scholarship Recipient,
BCOE Foundation Scholarship Recipient

Classes Data Structures & Algorithms, Software Construction,
Artificial Intelligence, Data Mining, Deep Learning

TECHNICAL SKILLS

Languages	Python, C++, Java, HTML/CSS, Javascript
Software	PyTorch, TensorFlow/Keras, Pandas, Jupyter Notebook, Git/GitHub, UNIX

RESEARCH EXPERIENCE

MAD Lab @ UCR <i>Student Researcher</i>	<i>December 2020 - Present</i>
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- Researching supervised and unsupervised network anomaly detection techniques under Vagelis Papalexakis.
- Applying tensor decomposition for useful feature extraction from hidden patterns in networks, and testing both supervised and unsupervised models for anomaly detection.
- Implemented and tuned GAN architecture-based models and Autoencoder models via PyTorch and PyTorch Lightning.
- Received a fiscal award via Google exploreCSR program to research through Summer 2021.

DSPathways Fellowship <i>Fellow</i>	<i>June 2022 - August 2022</i>
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- Researched unsupervised network anomaly detection techniques to minimize effects of hardware constraints.
- Explored feature extraction using EgoNets and tensors to generate node embeddings for abstract networks.
- Built a pipeline with limited human supervision to output a ranked list of potential anomalies based on network structure, given an input network.

Lawrence Livermore National Laboratory <i>Data Science Challenge Participant</i>	<i>August 2021 - September 2021</i>
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- Collaborated in teams to build an effective classifier to identify stars, galaxies, and asteroids from a night sky survey image (ZTF).
- Pre-processed and generated new positive data sample images from original data to avoid a sparse dataset.
- Trained a CNN-based classifier with up to 94% testing precision using pre-processed training images via TensorFlow.

WORK EXPERIENCE

University of California, Riverside
Graduate Teaching Assistant

September 2022 - Present

- Teaching Assistant for CS105: Intro to Data Science (Fall 2022) and CS235: Advanced Data Mining Techniques (Winter 2023).
- Organizing teaching materials each week and guiding students through various topics.
- Aiding professor with grading exams and lab demos.

University of California, Riverside
Supplemental Instruction Leader

September 2020 - Decemeber 2021

- Organized and taught a series of supplemental instruction classes to guide freshman through UCR's introductory CS courses.

Dexcom, Inc.
Software Engineer Intern

June 2020 - August 2020

- Designed and developed iOS applications to prototype newly designed app features, using Swift and Xcode.
- Redesigned, increased the portability, and improved the efficiency of an internal iOS network library, distributed via Cocoapods, which reduced overall battery consumption by 60%.
- Implemented database functionality in the mentioned library using company database frameworks, built using GRDB and SQLCipher for SQLite.
- Wrote extensive technical documentation and tracked development issues in Confluence.

PROJECTS

Melanoma Detection

June 2022

- Implemented an autoencoder for feature extraction and compression of high-resolution skin sample images.
- Built and trained a CNN network for melanoma classification with up to 80% precision using PyTorch.
- Integrated bayesian optimization to optimize both CNN and autoencoder architecture and hyperparameters.

Eight Puzzle Solver

February 2020

- Python-based AI program designed to solve user-inputted eight puzzles.
- Employs the A* search algorithm with two heuristics to find the optimal solution depth.
- Optimized execution time to be 60% faster compared to basic implementations, using hashing functions and recursive call caching.

Personal Portfolio Site

September 2020

- Utilized HTML/CSS and Javascript to create a web application that showcases projects.
- Leveraged the React Bootstrap framework to implement interactive UI components for simple site navigation.
- Hosted via GitHub Pages and set up to redirect to a custom domain from Google Domains.

PROFESSIONAL DEVELOPMENT

ACM@UCR: Event Manager

March 2020 - March 2021

Cyber@UCR: Ethics Director

March 2020 - March 2021

ACM@UCR: Membership Chair

March 2019 - March 2020