# Zakaria Al-Alie

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## Education

**University of California, Berkeley** — Berkeley, CA
*Bachelor of Arts in Data Science* — *Expected May 2028*
- Planned Relevant Courses: Foundation of Data Science, Program Structures, Data Structures, Calculus II, Linear Algebra and Differential Equations

**Merritt College** — Oakland, CA
*Dual Enrollment* — *Dec. 2024*
- Relevant Courses: Applications in Info Security, Secure Coding in JAVA and .NET, Python Application Programming, Introduction to Computer Programming, Introduction to Physics

## Awards and Honors

**Regents' and Chancellor's Scholarship**: UC Berkeley's most prestigious merit-based award, granted to the top 1–2% of entering students for demonstrated creativity, leadership, service, and outstanding academic excellence.

**Leaders for Tomorrow Scholarship**: Selected as one of two recipients in my incoming UC Berkeley class to receive this national award from the Annexstad Family Foundation, recognizing perseverance through adversity and exceptional leadership potential.

## Projects

**xView2: Building Damage Assessment** | *PyTorch, OpenCV, pandas* — Apr. 2025
- Automated building damage assessment on 850K+ buildings across 15 countries using PyTorch
- Built U-Net for localization, CNN for four damage levels, (un-damaged, minor, major, damaged)
- Achieved 84.4% weighted F1 (92% undamaged, 72% destroyed)
- Created CUDA-accelerated inference with precision/recall reporting and visualizations

**BerkeleyBets** | *React, Express.js, scikit-learn* — Jun. 2025
- Built full-stack sports analytics with 150+ NBA, NFL, MLB athletes with React (8 components, 4 pages) and Express.js
- Modeled 15K+ samples from 1,419 player-seasons using position-specific Random Forest with temporal validation
- Implemented real-time player lookup with Fuse.js fuzzy search and predictive analytics dashboard

**Neuroimaging for Tumor Diagnosis** | *PyTorch, torchvision, scikit-learn* — Jul. 2025
- Used PyTorch ResNet-18 transfer learning on MRI images, achieving 97.9% accuracy across 4 tumor types
- Achieved F1-scores of 96.5%-99.4% across all categories (glioma, meningioma, pituitary, no_tumor)
- Implemented data augmentation with rotation, flipping, and brightness adjustments along with learning rate scheduling and early stopping

**Oakland Crime Risk Heatmap** | *PyTorch, Pandas, GeoPandas* — Mar. 2025
- Analyzed 90 most recent days of Oakland Police reports alongside ShotSpotter gunfire activation data
- Created spatial-temporal features (time, police beat clusters, hotspot density)
- Trained PyTorch regression model to predict crime-risk levels across crime types
- Achieved $R^2 = 0.74$ with MAE of 0.18; visualized predictive heatmaps using GeoPandas

## Leadership

**Community Tutor and Volunteer** — Sep. 2020 – Present
*Oakland, CA*
- Mentored 140+ youth in CS/Math coursework across five local mosques in Oakland
- Hosted community events and distributed 500+ plated meals during Ramadan
- Organized cleaning and restoration efforts to maintain mosque facilities

## Technical Skills

**Languages**: Python, JavaScript, SQL, TypeScript, C++
**Technologies**: PyTorch, TensorFlow, scikit-learn, Hugging Face, LangChain, React.js
**Tools**: CUDA, Docker, Git, Jupyter, NumPy, pandas