

# Richard Zhang

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## EDUCATION

### University of California, Irvine

B.S. Computer Science, Intelligent Systems Specialization

Irvine, CA, USA

Sep. 2021 - Aug. 2025

## WORK EXPERIENCE

### Software Development Engineering Intern

OinAuto, CA, USA

Jul. 2024 - Sep. 2024

- Trained **SSD MobileNet V3** models in **TensorFlow/Keras** and deployed inference in **Python/OpenCV**, reaching **90% accuracy** on internal video.
- Tuned input resolution, confidence thresholds, and pre/post-processing, leveraging **IoU evaluation** to improve **precision by 25%**.
- Built a real-time camera pipeline with **OpenCV** VideoCapture, on-screen bounding boxes and class labels for **10+ classes** to support live evaluation.

### Full-Stack Software Development Intern

Patriot Conceptions, CA, USA

Aug. 2023 - Jan. 2024

- Led authentication and session management in **React** using Tailwind CSS, **improving client performance by 25%**.
- Integrated Firebase Authentication with the **JavaScript SDK**, authentication state observers, session persistence, and environment-managed credentials.
- Delivered production scaffold with **Next.js routing**, **REST API endpoints**, and a **PostCSS/Tailwind build pipeline** with environment-based configuration.

## PROJECTS

### UnbiasedNews Python, NewsAPI, HuggingFace

Jun. 2025 - Present

- Built a real-time news ingestion pipeline aggregating major U.S. outlets with a unified title-keyword query, rolling **72-hour discovery and 24-hour fetch window**.
- Achieved **92% successful full-text extraction** using **HTML parsing** with parser fallbacks and content-quality checks.
- Clustered related articles with **SentenceTransformers** and graph clustering, auto-summarized with **BART**, and stored structured outputs as **JSON**.

### DigiPrescription Flutter, Dart, Java, Swift, Android/iOS/Web

Oct. 2024 - Feb. 2025

- Built a cross-platform prescription manager in **Flutter/Dart** with a responsive **Material 3** UI, form validation, and adaptive layouts.
- Configured **Android with Gradle** and **iOS with Xcode**, and implemented native bridges in **Java/Kotlin** and **Swift/Objective-C** to access device APIs.
- Implemented a local-first data layer using sqflite, including DAOs, transactions, and schema migrations, with typed models and **JSON serialization** for reliable export and future sync.
- Secured sensitive fields using **OS keystore-backed secure storage**, added input redaction and structured error handling, and shipped reproducible Android, iOS, and web builds with basic logging.

### Search Engine Python, BeautifulSoup

Sept. 2024 - Dec. 2024

- Implemented a tokenizer and inverted index with Boolean queries plus TF-IDF ranking, handling **tens of thousands of pages** with query latency under **50 ms**.
- Built a focused crawler with Requests and **BeautifulSoup** featuring dead-page detection, text-density filtering, URL normalization, extension and query blacklists, and a UCI domain allowlist.
- Integrated crawl, index, and query into one pipeline with configurable seeds, saved crawl state, and a simple results UI.

## TECHNICAL SKILLS

**Programming Languages:** Python, C++, Java, HTML/CSS, JavaScript, Typescript, Dart, Swift, SQL

**Libraries and Tools:** React, Next.js, Node.js, Express, Flutter, Firebase, Algolia, Material UI, Figma, OpenCV, spaCy, YAKE, NumPy, Git/Github, Docker, AWS, REST APIs, Linux, CI/CD, Agile

**ML Architectures:** PyTorch, Hugging Face, RoBERTa, BART, TensorFlow, NLP, OOP