

# RAY QIN

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## EDUCATION

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### University of California, San Diego

Sep 2019 – Mar 2023

- **B.S. Computer Science** & Mathematics & Mechanical Engineering, **GPA: 3.9+/4**, Provost Honors
- **Skills:** Python, Java, C++, Software Architecture, System Design, HTML, CSS, JavaScript, SQL, AWS, PHP, Effective Communication, Bootstrap, Apache, Linux, Android, Git, Docker, React, Firebase, NodeJS, Express, MongoDB, TensorFlow, SolidWorks, ROS2.

## WORK EXPERIENCE

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### MEDsmart

Sep 2021 – Mar 2022

*Software Engineer*

*San Diego, CA*

- Estimated future usage of medication by Implementing **LSTM machine learning** algorithm in **Python**.
- **Reduced shortage response time by 7%** by generating inventory reports and visualizations.
- **Slashed inventory waste by 4%** by automating database queries and synchronization with **AWS**.
- **Cut operation costs by 21%** in clinics by tracking and automating the medication refill process.

### Qualcomm Institute

Dec 2020 – Jun 2021

*Data Analyst*

*San Diego, CA*

- Acquired and processed business data from the **Yelp API** for further analysis in Python.
- **Integrated data sets** to obtain more powerful results across different sources.
- Conducted **sentiment analysis** with NLP libraries to understand customer reviews.
- Enhanced business productivity by insightful correlations and **descriptive statistics**.

## FEATURED PROJECTS

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### SQLightning

Database Management System

- Developed a **relational database** command line terminal in **C++**.
- Supports **CRUD equivalent** commands, schema, join, primary key, and core **SQL** functionalities.
- Built flexible and expressive **interfaces** and **abstractions** to enhance re-usability and adaptability.
- Led **software architecture** design for database, data flow, application layers, and component interaction.
- Improved database **robustness** through **input tokenizer**, **typed-stream** encoder, and **status result** system.
- Used smart pointers, dynamic dispatch, **design patterns**, and best practices to reduce **cognitive load**.
- Implemented **unit tests**, **integration tests**, and **continuous integration** to enhance **reliability**.
- **Optimized performance by 64%** with the **index** system and the **cache** system.

### Cloud Drive & Analytics

Full Stack Development

- Built a Cloud Drive and Analytics Dashboard with **React**, **Firebase**, HTML, CSS, and JavaScript.
- Allows authorized users to perform **CRUD** actions with files, folders, and account information.
- Collects and analyzes visitor information with client-side **JavaScript** and **Apache** server log files.
- Implemented secured routes, **authentication**, **authorization**, custom roles, and security rules for data access.
- Designed a **RESTful API** using **Express** and **NodeJS** to handle client side API calls for data collection.

### San Diego Zoo Seeker

Mobile Development

- Built a path-finding **Android** app for San Diego Zoo in a **team** of 6 passionate engineers.
- Maximizes visitor efficiency by recommending the **best route** with Dijkstra algorithm and **Google Map API**.
- Increased team **reliability** by building **CI/CD pipeline**, **unit tests**, and **sprint board** on ZenHub.

### Autonomous Navigation System

Deep Learning, Robotics

- Designed and built a 1/8 scale **autonomous car** that performs on tracks with over **90% success rate**.
- Implemented **Tensorflow** and **OpenCV** libraries in **Python** in embedded NVIDIA Jetson Nano.
- Developed ROS2 **object detection** package with YOLOv5 model on **Docker** with accuracy over 95%.