

# Justin He

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## EDUCATION

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### University of California, Los Angeles (UCLA)

Sep. 2020 – Jun. 2023

*Bachelor of Science in Computer Science, Bachelor of Science in Applied Mathematics*

*Los Angeles, CA*

- GPA: 4.0/4.0
- Coursework (CS): Natural Language Processing (Graduate), Operating Systems, Computer Networking, Computer Architecture, Databases, Programming Languages, Machine Learning, Artificial Intelligence, Algorithms
- Coursework (Math): Real Analysis (Honors), Stochastic Processes, Optimization, Game Theory, Linear Algebra
- Activities: Upsilon Pi Epsilon (UPE) - Corporate Chair, Creative Labs - Project Developer

## EXPERIENCE

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### Software Engineer Intern

Jun. 2023 – Present

*Citadel Securities*

*New York, NY*

- Trading Ecosystem, working on high-performant trading infrastructure
- Designed data pipelines for systematically identifying & correcting invalid trade executions for manual bookings
- Developed Python utilities to leverage high-performance data processing by converting Kafka protobufs to q/kdb+
- Created a performance benchmarking framework for the manual trade booking system to maintain acceptable latency and fault-tolerant performance under loads of up to 100,000 simultaneous orders

### Software Engineer Intern

Jun. 2022 – Sep. 2022

*Meta (formerly Facebook)*

*Menlo Park, CA*

- Under Instagram Demand & Efficiency Management, focused on optimizing Instagram's backend efficiency
- Coordinated a IG Infra XFN project on developing metrics for estimate launch ROI to optimize engagement
- Spearheaded development of a dashboard for managing power usage of 25 Instagram services across 500,000 servers
- Developed internal tools to aggregate feature power usage and link data across 1,250+ launches and regressions
- Created a heuristic for correlating sustained computing performance and resource changes with launches

### Software Engineer Intern

Jun. 2021 – Sep. 2021

*Fwaygo*

*Los Angeles, CA*

- Developed microservices in Go for user/song data processing, report handling, and server-to-client messaging
- Utilized RabbitMQ to facilitate interservice pub/sub communication between Docker container clusters on GKE
- Created GraphQL APIs for user/song queries & mutations and integrated them into the React Native frontend

### Software Developer

Apr. 2021 – Jun. 2021

*NurLabs*

*Los Angeles, CA*

- Collaborated with UCLA researchers to develop a script for batch extracting spectroscopy data from .WDF files to train a machine learning lung cancer detection model
- Improved data extraction time from 2 minutes per file to less than one second overall
- Created a server and API for receiving and storing client information using PostgreSQL, Node, and Express

## PROJECTS

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### GNN Integration to Knowledge Graph for Nephrology QA System

Mar. 2022 – Jun. 2022

- Collaborated with three UCLA PhD & Master's students to train novel QA models for joint reasoning across language models and knowledge graph-enhanced GNNs to answer nephrology questions
- Tuned GreaseLM and QA-GNN models under various hyperparameter and knowledge graph configurations to achieve state-of-the-art test accuracy of 37.2% for questions with 5 answer choices
- Applied mention detection, entity linking, and relation extraction using spaCy to generate a specialized knowledge graph and annotated QA dataset
- Automated cleaning of data from a nephrology corpus consisting of 563 textbook chapters and 814 research articles

## TECHNICAL SKILLS

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**Languages:** C++, Python, Go, JavaScript, Java, C, SQL, PHP, Bash, Verilog

**Libraries:** PyTorch, NumPy, pandas, React, Node, Express, GraphQL

**Technologies:** Git, Docker, Makefile, Google Cloud, AWS, Firebase, MySQL, PostgreSQL