

# Harry Leung

## Software Engineer

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## EDUCATION

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### University of California, Irvine

Sep. 2021 – Jun. 2025

B.S. in Computer Science

**Relevant Coursework:** Neural Networks & Deep Learning, Operating Systems, Database Systems

Artificial Intelligence, Machine Learning, Graphical Models, Information Retrieval, Data Structures & Algorithms, Networks

## WORK EXPERIENCE

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### Software Engineering Intern

Jun. 2023 – Sep. 2023

Teradyne Inc. (Litepoint Division)

San Jose, CA

- Enhanced data visualization and regression analysis by developing a Tkinter-based GUI tool, reducing onboarding time for new engineers by 30% and improving decision-making speed.
- Reduced query response time by 96% through Apache Cassandra integration, optimizing storage/retrieval of regression tester data and strengthening backend development reliability for 100+ GB datasets.
- Increased team efficiency by 25% by streamlining deployment workflows for internal tools, introducing lightweight DevOps practices that enabled faster quality testing and quicker release readiness.
- Designed and implemented responsive Tkinter interfaces with intuitive layouts, decreasing training requirements for new users from 2 hours to under 45 minutes.
- Integrated Matplotlib to generate actionable visual reports within a full stack internal application, accelerating root-cause analysis for performance issues by 40%.

## PROJECTS

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### Toy Programming Language Interpreter | Language Design, LLVM, Compilers, AST, Lexing, Parsing

- Developed a custom interpreter with a complete language processing pipeline (lexical analysis, parsing, AST construction, interpretation) supporting variables, arithmetic operations, control flow, functions (including recursion), and error handling.
- Integrated basic LLVM-based code generation to enable future compilation and performance optimization.

### ICS Web Crawler | Python, Web Crawling, Distributed Systems

- Configured a scalable, microservices-inspired web crawler leveraging a spacetime cache server for distributed URL fetching on the UC Irvine ICS domain.
- Implemented custom scraper rules to filter, parse, and enqueue valid web URLs.

### Virtual Memory Manager | Operating Systems, Memory Management, LFU Caching, Virtualization

- Built a virtual memory manager simulating two-level paging and dynamic memory allocation.
- Implemented malloc, free, and realloc to manage physical memory blocks with fragmentation-aware policies.
- Designed and integrated LFU (Least Frequently Used) page replacement logic for page faults and allocation retries when memory is full.

### AI Art Detector | Python, Deep Learning, PyTorch, Transformers

- Achieved high-accuracy binary classification of AI-generated vs. human-made images by training custom CNN and Vision Transformer models.
- Enhanced model robustness and generalization through targeted data augmentation, normalization, and preprocessing techniques.
- Streamlined experiment reproducibility and performance tracking using WandB, enabling rapid iteration and evaluation.

## SKILLS

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**Languages:** Python, C++, C, Rust, JavaScript, TypeScript, Go, Java, Kotlin, Ruby, Swift, x86/ARM Assembly, SQL

**Web & Frameworks:** React, Next.js, HTML + CSS, Node.js, Flutter, Spring

**ML/DL Libraries:** PyTorch, Keras, NumPy, Transformers

**Systems & Tools:** LLVM, OpenGL, Redis, Git, Agile, Linux, Docker, Bazel, CMake, Makefile, CI, DevOps, Valgrind, GDB, Radare2, Tracy, libFuzzer, ASAN, MySQL, GraphQL, Kubernetes, NoSQL, iOS Development, REST APIs

**Spoken Languages:** English, Cantonese, Mandarin