

Chetan Goenka

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EDUCATION

University of California, Berkeley

Master of Science in Electrical Engineering & Computer Science

Berkeley, CA

May 2026

University of California, Berkeley

Bachelor of Arts in Computer Science

GPA: 3.90/4.0

Berkeley, CA

Dec 2024

SKILLS

Programming Languages: Python, Java, Javascript, SQL, C++, C, C#, HTML, CSS, Swift, Bash, Assembly, R, MATLAB

Frameworks/Tools: React, Node.js, Flask, Django, Pandas, NumPy, OpenAI, LangChain, Git, AWS, MongoDB, PostgreSQL

RELEVANT EXPERIENCE AND PROJECTS

BERKELEY INSTITUTE OF DESIGN - Human Computer Interaction Lab

Berkeley, CA

Engineering Design Scholar & Undergraduate Researcher

May 2024 – Jan 2025

- Engineered a web-based coding environment using React, CodeMirror, and OpenAI API, delivering dynamic, context-aware code explanations (line-by-line, block-wise, and data-flow) to enhance developer comprehension of AI-generated code
- Designed and implemented structured JSON metadata extraction with Zod, ensuring accurate line mappings, logical groupings, and data-flow tracking, enabling dynamically linked LLM-generated explanations and interactive overlays
- Extended CodeMirror's annotation capabilities by building custom DOM-based overlays for code elements, hover-triggered tooltips, and click-driven interactions, improving code navigation and readability through dynamic in-editor explanations

AI-POWERED BOARD GAME COMPANION - Board Wizard

Mar 2025 – Present

- Developed and deployed a Retrieval-Augmented Generation (RAG) web application using Python, LangChain, and OpenAI APIs that processes PDF rulebooks into vector embeddings to instantly answer board game rule questions
- Implemented a graph-based workflow using LangGraph's StateGraph to streamline the RAG process, combining vector similarity search with customized LLM prompting to generate contextually precise answers
- Built a responsive Streamlit user interface with chat functionality, game selection features, and efficient state management

PYTHON COMPILER

Jan 2024 – May 2024

- Developed a compiler using Java for ChocoPy, a statically typed dialect of Python, implementing key stages including lexical analysis, syntax analysis, and optimized code generation for RISC-V assembly
- Constructed a code generator to translate type-annotated ASTs into efficient RISC-V assembly code, integrating techniques such as constant propagation, dead code elimination, and register allocation, reducing runtime by 40%
- Implemented list operations, function calls, and control flow structures, ensuring correct execution of ChocoPy programs on a RISC-V simulator, and constructed an integrated semantic analyzer and type checker to maintain well-typed programs

PROCEDURAL WORLD GENERATION ENGINE

Jan 2023 – May 2023

- Devised and implemented a Java-based engine capable of generating and rendering pseudo-random, tile-based worlds with distinct rooms and hallways, allowing users to explore and interact with the environment through keyboard inputs
- Created and optimized complex algorithms for world generation, including the strategic placement, connection, and variation of rooms and hallways to ensure randomness, uniqueness, and diversity across multiple world instances
- Built a modular, scalable codebase using object-oriented principles, ensuring robustness using an extensive testing framework

ORACLE CORPORATION

Austin, TX

Data Science Intern

Jun 2022 – Aug 2022

- Evaluated 100+ marketing campaign responses using Python and SQL to extract key insights from customer interaction data
- Designed and implemented a predictive intelligence scoring system using Python, increasing marketing efficiency by 25%
- Enhanced data pre-processing and model deployment pipeline, decreasing overall run time by 18%