

Junsoo Kim

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EDUCATION

University of Southern California | Los Angeles, CA

2023 – Expected 2026

Bachelor of Science in Computer Engineering Computer Science

GPA: 3.92/4.0

- **Relevant Coursework:** Principles of Software Development (Java), Data Structures and Object-Oriented Design (C++), Probability Theory
- **Activities:** Professional Event Director in KSEA, Undergraduate Researcher

EXPERIENCE

University of Southern California, ICAROS Lab

Los Angeles, CA

Undergraduate Researcher

November 2024 – Present

- Collaborate with researchers on reinforcement learning experiments for human-robot cooperative games
- Engineered a Python-based AI interaction system using Groq API for autonomous dialogue between language models
- Developed Neo4j knowledge graphs to implement planning capabilities when LLM discussions reached limitations
- Currently developing a LLM to develop appropriate PDDL in Overcooked setting

University of Southern California, Takahashi Lab

Los Angeles, CA

Undergraduate Research Assistant

November 2023 – June 2024

- Collaborated with graduate students on quantum physics experiments, gaining expertise in quantum mechanics
- Developed a C++ program to calculate standard deviation for N-V centers data, optimizing lab data analysis
- Utilized Mathematica to calculate detection volumes from research papers, enhancing experimental results

PERSONAL PROJECTS

MuseumGeek Ticketing System | *Course Project*

Java, JSON, CSV, Threading

- Engineered a multi-threaded Java application simulating a museum exhibit ticketing system with dynamic ticket agents
- Implemented synchronized resource management using locks and semaphores to coordinate concurrent operations
- Developed a parser for JSON exhibit data and CSV transaction schedules with input validation and error handling

HandSignalCV | [GitHub](#) 📄

OpenCV, Mediapipe, Tensorflow

- Created ML system to detect and translate American Sign Language (ASL) into spoken sentences using OpenCV and Mediapipe
- Extracted hand landmarks and captured 5,200 images across the alphabet, ensuring high accuracy across multiple users
- Trained a CNN with ReLU activation functions using Adam optimizer, achieving 99.5% accuracy and integrated Cohere API

YouTube Clone

TypeScript, Firebase, Tailwind CSS

- Developed a fully functional YouTube clone using TypeScript and Vite, enabling users to upload, download, and stream videos through Firebase Storage.
- Implemented user authentication with OAuth, securely storing authentication data in Firebase Authentication.
- Designed a responsive and modern UI using Tailwind CSS, ensuring a seamless user experience across devices.
- Optimized video handling by implementing lazy loading and caching techniques to enhance performance.
- Integrated real-time database updates for tracking video views, likes, and comments using Firebase Firestore.

College Professor Web Scraper | [GitHub](#) 📄

Python, PostgreSQL

- Developed a web scraper using Python, BeautifulSoup4, and Psycpg2 to collect professors' educational backgrounds
- Implemented PostgreSQL for robust data storage and retrieval, optimizing for large datasets using complex queries

SKILLS

Languages: Python, C/C++, HTML, CSS, Node.js, React.js, PostgreSQL

Developer Tools: Git, Docker, Visual Studio, PyCharm

Data Library: NumPy, Pandas, Matplotlib, Scikit-learn, Tensorflow, Groq API, Cohere API, OpenCV, HDF5

Awards: J. Jayne Bissell Memorial Scholarship, Academic Achievement Award, 2 x Dean's List