Rohan Gupta

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Driven and excited about opportunities in AI/ML (Multimodal, Computer Vision, Robotics, NLP)
Link to Project Descriptions

EDUCATION

UNIVERSITY OF SOUTHERN CALIFORNIA   **Los Angeles, CA**
BS Computer Science, Finance Minor   **Aug 2020 - May 2024**
MS Computer Science, emphasis in AI/ML & Robotics (Progressive Degree Program)   **Jan 2024 to May 2025**
GPA: 3.73/4
Relevant Activities: Undergraduate TA/Course Producer for "Intro to Artificial Intelligence" and "Intro to Operating Systems" courses
Awards/Designations: USC Presidential Merit Scholar, Provost's Undergraduate Research Fellowship, Viterbi Dean's List

RELEVANT EXPERIENCE

SYNOPSYS | *R&D Machine Learning Intern*   **June 2024 – Feb 2025**
- Interned on a fast-paced team working on LLM and GenAI-focused projects in the Design Technology Group in Synopsys's R&D division
- Used Python and LangChain to develop multiple LLM-based agents that are set to be incorporated in flagship products like Fusion Compiler, RTLA, and ICC2
- Performing rapid experimentation and prototyping of AI-enabled tools with the existing products, primarily around RAGs and agent alignment for natural language commands
- Invited back to intern for Fall 2024 semester remote

USC VITERBI SCHOOL OF ENGINEERING | *AI/ML Research Assistant & Software Engineer*   **May 2023 - Present**
- Collaborated with Professor Jesse Thomason in the GLAMOR Lab on robotics, computer vision, and NLP research for Vision-and-Language Navigation and Sim2Real
- Trained end-to-end, multimodal, attention-based models consisting of vision-and-language transformers, CNNs, and RNNs and built a sample-efficient evaluation framework for a physical robot using perplexity and distance-to-goal as success metrics
- Coded real-robot teleoperation and data collection and used reinforcement learning to finetune a language-conditioned behavior-cloned policy for a physical robot in PyTorch
- Future work will involve open-vocabulary segmentation using large vision models
- Paper accepted at LangRob Workshop @ CoRL 2023 (Oral, Top 15% of papers)
- Paper accepted as publication @ CoRL 2024 (38.2% acceptance rate)

USC INVESTMENT OFFICE | *Software Engineering and Data Analyst Intern*   **Jun – Dec 2022**
- Worked with an 8-person team to help run an $8+ billion endowment by focusing on software and automation projects.
- Made website on Wordpress and coded a financial news webscraper using Python and Beautiful Soup.
- Performed statistical analysis of financial time-series data using Excel, Python, and other financial software, and took notes at meetings.

SELF-STARTED PROJECTS | *Co-founder*

- *StreetFins*   **Oct 2017 – Nov 2022**
  Built and grew team of 60+ students for a financial education startup. Created the business plan, coded the website, and reached out successfully to high schools across 16 states. Hosted the "Finance Simplified" podcast which has over 70k listens with notable guests from industry, academia, and government. Won paid contracts with 2 larger companies to produce educational content.
- *Peersdom*   **Oct 2017 – Mar 2019**
  Built and led team of 10+ students on app development. Developed app using the Ionic Angular framework for the frontend in TypeScript, JavaScript, HTML, CSS, Google Cloud for the SQL-based backend, and Firebase for authentication and messaging. Published on iOS and Android.

CLASS PROJECTS | *Student Software Developer*

- *Capstone Project (Data Analytics Project for Chris Mattmann, former CTIO of NASA JPL)* **Jan – May 2023**
  Transformed datasets from Wordpress and Google Analytics to reveal insights about visitor data. Coded NLP tools using Python, Pandas, Top2Vec, spaCy, and Tika in addition to heavy Excel work. Presented findings in a final slideshow that heavily relied on D3 data visualization.
- *Classical Music Generation*   **Sep – Dec 2023**
  Used the music21 library and PyTorch to do supervised learning and train transformers, RNNs, and n-grams to generate classical music. Created a custom data transformation pipeline for musical compositions from 9 classical composers and performed supervised learning and trained transformers and RNNs, each a few million parameters, as well as n-grams.

ADDITIONAL INFORMATION

- **Languages**: Python, C/C++, Java, JavaScript, TypeScript, Angular, React, C, PHP, SQL
- **Frameworks/Tools**: Git, AWS, Google Cloud, CLI, Docker, CI/CD, Linux/Unix, ROS, Arduino, PyTorch, LangChain, OpenCV, Spark, TensorFlow, Keras, NumPy, Pandas, SLURM, Hydra, WandB, Tika, Ionic, Wordpress, Vector Databases