Jack Geng

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Education

University of North Carolina at Chapel Hill Aug. 2022 - May 2025

B.S. Computer Science — GPA: 3.99/4.00

- Courses: Algorithms and Analysis, Foundations of Software Engineering, Systems Fundamentals, Data Structures, Software Engineering Practicum, Web Development, Discrete Structures, Machine Learning, Linear Algebra

Experience

iOS Developer Jan. 2024 – Present

App Team Carolina — Luminary *Chapel Hill, NC*

- Led the development and launch of a navigation app tailored for students with mobility limitations, featuring a multi-modal (text, image, location) real-time obstacle reporting system, a critical component ensuring comprehensive user safety information for the April 2025 App Store release
- Integrated a custom routing engine using Dijkstra's algorithm combined with accessibility-based weighting logic, achieving 97% accuracy in pathfinding validations
- Engineered a more responsive map by developing custom `MKAnnotationView` and re-architecting UI-intensive components, slashing sheet presentation latency from ∼3s to 1.2s through streamlined SwiftUI state management

Software Engineer Intern June – Aug. 2024

Bank of America *Charlotte, NC*

- Delivered the design and implementation of Azure Cosmos DB using Graph API, focusing on integrating NoSQL API database services with cloud infrastructure via Terraform for streamlined future deployment, potentially allowing for reducing provisioning time by nearly 20%
- Developed a Python internal package automating sprint planning and status reporting across 12 Azure services; integrated interactive CLI with Confluence REST API, improving planning clarity and task tracking efficiency

Data Engineer Intern May – Aug. 2023

Enact Mortgage Insurance *Raleigh, NC*

- Designed and built a Streamlit web application that interacts with Enact One Analytics Model database, facilitating streamlined ETL operations for Data Science Team and 10+ business users
- Optimized data cleansing workflow in Enact One Analytics Model database by implementing Snowflake stored procedure, improving data processing speed by ∼35%

Projects

Basketball Objects Detection Model | STAR Heel Laboratories

- Designed and implemented AWS Rekognition scripts for automated video analysis by handling API responses, parsing key objects positions (basket, rim, board, and ball) from JSON files filtering 5 frames per 2,000 frames
- Optimized AWS SageMaker image labeling workflow by creating scripts that upload image footages - processed by OpenCV library from 4,000 mins of videos - to S3 bucket and return pre-signed URLs to bucket objects

LLM for Long Video Modeling with Dr. Gedas Bertasius | Undergrad Research Group

- Developed an evaluation metric for tuning videos from YT-1B dataset with uniformly distributed transcripts and filter 24% video data for Chat GPT to more accurately capture the main gist of storylines and key visual events
- Leveraged GPT-4V to achieve automated large video-text data generation by rating storyline complexity and generating multiple-choice high-level video understanding QA pairs for training

Tonal Tinnitus Therapy Filter Software by C++ | Personal Project

- Built an audio therapy filter based on JUCE that notches tonal tinnitus frequency in audio input, implementing real-time audio processing and personalized therapy in a user-friendly GUI with signal visualization

Skills

Programming Languages: Swift, C, C++, Java, Python, HTML, JavaScript, SQL, Terraform, TypeScript
Dev Tools/Frameworks: Angular, AWS, Docker, Git, Microsoft Azure, PostgreSQL, REST API, Snowflake, Streamlit
Certifications: Microsoft Azure Fundamentals, Data Fundamentals, HashiCorp Terraform Associate (003)