René Sultan

(917) 691-2977 • New York, NY • rs4240@columbia.edu • renesultan.com • github.com/renesultan

Education

Columbia University, Columbia Engineering   Graduating May 2025

B.S. in Computer Science, Minors in Applied Mathematics, Entrepreneurship & Innovation, and Philosophy - GPA: 3.93   New York, NY

Relevant Coursework: Unsupervised Learning, Deep Learning for Computer Vision, Computation and the Brain, Machine Learning, Advanced Spoken Language Processing, Natural Language Processing, Artificial Intelligence, Design Using C++, Clean Object-Oriented Design, Full-Stack Web Development, Data Structures, Databases, Computational Linear Algebra, Probability and Statistics

Activities: [AlmaWorks Accelerator](#) (Head of Recruitment), [NextGen Entrepreneurship Network](#) (Board Executive, Campus Director)

Skills & Technology Stack

Programming Languages	Python, Java, C/C++, JavaScript, TypeScript, HTML/CSS, SQL, MIPS Assembly
Tools & Frameworks	React.js, Node.js, NPM, Git, Bash, MySQL, MongoDB, Jira, Jupyter, Matplotlib, Seaborn
Cloud & Big Data	AWS (EC2, S3, SageMaker), GCP (GCE, GCS, BigQuery), Hugging Face, Ollama
ML Libraries & Tools	PyTorch, TensorFlow, Keras, Scikit-Learn, NumPy, Pandas, NLTK, OpenCV, OpenAI API
Languages	French (native), Arabic (native)

Work Experience

[Spotify](#) - Content Understanding, Violative Content Moderation   June 2024 - August 2024
Machine Learning Engineering Intern   New York, NY
- Developed 3 end-to-end ML pipelines for content moderation leveraging SOTA multimodal ML with OpenAI's CLIP
- Pre-processed data using CLIP embeddings, fine-tuned the CLIP model, and created a dashboard for model evaluation and validation, successfully deploying the model in collaboration with data engineers
- Sampled, annotated, cleaned, transformed, and analyzed raw unlabeled data using Jupyter, Pandas, NumPy, and visualization tools (Seaborn, Matplotlib), identifying and reporting annotation defects and data patterns to enhance data quality
- Utilized Google Cloud Platform (GCE, BigQuery, Cloud Storage) for compute, data management, and storage

[HoneyHive](#) - AI Developer Platform for LLM Applications   January 2024 - May 2024
Full-Stack Software Engineering Intern   New York, NY
- Lead the design and implementation of advanced, filterable dashboards for in-depth LLM performance analysis using React and JavaScript, enabling users to benchmark models, compare hyperparameters, and select optimal LLM providers efficiently
- Enhanced the platform's dataset uploading and management features to robustly support multiple file types including JSON, JSONL, and CSV, significantly improving error handling and scalability for large datasets.

[Peking University](#) - School of Computer Science, Center on Frontiers of Computing Studies   June 2023 - July 2023
AI/ML Visiting Research Scientist   Beijing, Mainland China
- Shadowed leading AI researchers on projects integrating LLMs with RLHF for robot learning and multi-modal intelligence
- Engaged in workshops and conferences discussing LLM apps, RLHF, and Federated Learning, staying abreast of AI innovation
- Attended tech demos at major Chinese AI institutions like Huawei, Baidu, and ByteDance, observing cutting-edge applications.

[Aren](#) - AI-Powered Platform for Infrastructure Management   June 2022 - September 2022
Machine Learning Engineering Intern   New York, NY
- Engineered a deep learning pipeline for crack detection in infrastructure imagery using PyTorch, facilitating comprehensive damage reports for clients across multiple structure types.
- Evaluated 25 semantic segmentation model performances and compared IoU, accuracy, precision, recall, and F1 score
- Built and deployed a data preprocessing pipeline including data augmentation using the Albumentations library

Projects

[**Dynamic Web Communications System**](#): Engineered a three-tier HTTP client-server architecture in C, featuring real-time data exchange and dynamic content generation via WebSocket API for enhanced web interactions

[**2048 AI Mastermind**](#): Crafted an advanced AI-solver for the 2048 game using Python, integrating the expectiminimax algorithm, alpha-beta pruning, and tailored heuristic functions to efficiently predict and manage the game's inherent randomness

[**RPSKL Simulator**](#): Designed a Java object-oriented app of RPSKL with dynamic GUI interactions, leveraging design patterns (Factory, Singleton, Observer, Strategy, Command, Visitor) for scalable and clean code, utilizing Swing for visuals and AWT for event handling

Leadership, Community Involvement, and Personal Development

Techstars NYC powered by JP Morgan: co-organize screening of 24 top startups for 20 venture capitalists to choose accelerator cohort

Give Me Five: co-founded in 2020, direct food insecurity initiative and raise $10K to distribute +40K food boxes in +25 lebanese districts