

# Rahil Singhi

+1 (646) 729-6148

[linkedin.com/in/rahilsinghi27](https://www.linkedin.com/in/rahilsinghi27) | [github.com/rahilsinghi](https://github.com/rahilsinghi)

[rahilsinghi300@gmail.com](mailto:rahilsinghi300@gmail.com)

## EDUCATION

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- **New York University, Tandon School of Engineering** New York, USA  
May 2026 (Anticipated)  
*M.S. Computer Engineering; GPA: 3.88*
- **SSN College of Engineering** Chennai, India  
Jul 2020 – Jun 2024  
*B.E. Computer Science; CGPA: 8.0*

## SKILLS SUMMARY

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- **Languages:** Python, SQL, C/C++, Java
- **ML Frameworks & Tools:** PyTorch, TensorFlow, Scikit-Learn, XGBoost, HuggingFace Transformers, Grid-Search CV, Model Evaluation
- **ML Specializations:** Deep Learning, Computer Vision, NLP, Adversarial Training, Regression, Neural Networks, Feature Engineering
- **Backend & Data:** FastAPI, Flask, PostgreSQL, BigQuery, ETL Pipelines, Data Modeling
- **Cloud & DevOps:** AWS, GCP, Docker, CI/CD, Git/GitHub

## EXPERIENCE

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- **Kismet** Remote  
May 2025 – Jul 2025  
*AI / Data Engineering Intern*
  - **ML-Powered Data Extraction:** Built a Playwright + LLM pipeline with tool calling that converts unstructured hotel data into structured outputs (>95% field coverage).
  - **Backend API + Data Pipeline:** Shipped a FastAPI service with async workflows; designed for parallel execution and reliable retries on failures.
  - **Performance Optimization:** Parallelized adapters using `asyncio`, added Redis caching; deployed on AWS EC2 then migrated to GCP Cloud Run.
- **Kismet** Remote  
Sept 2025 – Dec 2025  
*Computer Engineering Intern (Tracking Engineer)*
  - **Production Data Platform:** Built backend APIs aggregating time-series metrics from BigQuery; implemented validation layers for data quality.
  - **Data Pipelines + Schema Design:** Designed GA4-export query patterns and summary tables; standardized event schemas across heterogeneous sources.
  - **Multi-Signal Classification:** Implemented fault-tolerant classification logic deriving consistent attribution from noisy upstream inputs.

## PROJECTS

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- **Adversarial Attacks on Image Classification:** PyTorch project evaluating FGSM, PGD, and I-FGSM on ResNet-34 (ImageNet-1K) and hardening models via adversarial training.
  - **Attack Implementation:** Implemented FGSM, PGD, and I-FGSM with configurable parameters; PGD reduced Top-1 accuracy from 76% to 2%.
  - **Adversarial Training:** Integrated on-the-fly PGD example generation, restoring Top-1 accuracy to 61% on adversarial inputs.
  - **Transfer Analysis:** Benchmarked attack transfer from ResNet-34 → DenseNet-121; produced comparative plots for conference report.
- **SuperPlay – AI-Powered Spotify Playlist Curator:** End-to-end ML pipeline with ETL, feature engineering, model training, and API deployment for mood-based playlist curation.
  - **ETL + Feature Engineering:** Built Python ETL pulling 5K+ tracks from Spotify/Genius APIs; extracted audio metrics + transformer-based lyric embeddings.
  - **Model Training + Tuning:** Trained XGBoost classifier with grid-search CV, achieving 96% macro-F1 for mood prediction.
  - **Model Serving:** Exposed predictions via Flask REST API; containerized with Docker for one-command deployment.
- **Wind Energy Forecasting using Regression and Neural Networks:** Developed data-driven forecasting models achieving 95% precision for renewable energy integration.
  - **Model Development:** Developed innovative data-driven techniques using regression and neural networks; achieved 95% precision in predictive models.
  - **Research Publication:** Co-authored research paper submitted to Electric Power Components and Systems journal on renewable energy forecasting tools.