Rushikesh Desai

Data Structure | Deep Learning | AI/ML
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Education

Master Degree in Computer Science, *New Jersey Institute of Technology, Newark, NJ* **Sept 2023– May 2025**
Coursework: Cognitive computing, Data-Driven Financial Modeling, Machine learning, Advanced Database System Design, Operating Systems, Applied statistics, Machine Learning for Time Series Analysis and Forecasting.

Bachelor of Technology, Computer Engineering, *D.K.T.E Engineering Institute, India* **Aug 2016 – July 2020**
Coursework: Data Structures and Algorithms, Database Management Systems, Automata Theory, System Programming, Machine Learning, Database Systems, Cloud Computing.

Skills Summary

Programming Languages: C, C++, Python, Java, R
Databases: SQL, MongoDB, Neo4j, Neo4j, Postgres, Cassandra
Data Science: Scikit-learn, NLTK, BERT, Pandas, TensorFlow, Pytorch, CNN, GNN, Transformers, LLMs, RAG, Agentic AI
Mathematical: Applied Statistics, Probability, Linear Algebra, Stochastic Calculus, Differential Equations
Tools & Frameworks: AWS, Kubernetes, Docker, Elasticsearch, Tableau, Spark, Hadoop, Kafka, Flink, Airflow
Finance: Portfolio Analysis, Financial Modeling, Market Risk Analysis, Bloomberg certification (BMC)
Other skills: Feature engineering, System Design, Time-series analysis

Experience

Research Assistant, *Martin Tuchman School of Management, NJIT, New Jersey* **Sept 2024 – May 2025**
- Using reinforcement learning and attention-based models to portfolio optimization using statistical methods and probability models. Utilized time series modeling and financial mathematics with multi-modal AI.

Data Analyst, *NJIT, New Jersey* **May 2024 – May 2025**
- Analyzed application data, developed predictive models for volume, yield, and demographics, and provided insights to optimize admissions and financial aid strategies.
- Built streamline data pipelines and translating data insights to directors, for strategic decision-making (ETL, data modeling).

Data Scientist, *Flairminds Software, India* **Oct 2022 – June 2023**
- Developed and deployed an NLP-based product-matching system for e-commerce, utilizing BERT (word2vec, spaCy) for text processing and analysis, improving product categorization and search relevance.
- Implemented advanced computer vision models (VGG, Inception, ResNet, YOLO-NAS) for image comparison, improving product search accuracy by 30% and reducing search time by 25%.
- Developed ML-driven document parsing system to extract, store, and retrieve data in Elasticsearch, delivering query-based results to improve search efficiency, and deployed it on AWS with React web app interface. (Feature Engineering)

Full-stack developer, *E-venu Computers, India* **Sept 2021 – Aug 2022**
- Spearheaded development of Product supply chain system, like integrating recommendation algorithms for target customer segments, predict sales across regions, and enhance inventory management efficiency.
- Implemented Optimizing techniques such as web speed optimization, compression using GZIP, caching along with MongoDB database optimization by data modeling & sizing memory (program optimization).

Software Developer, *Rheal Software, India* **Nov 2020 – July 2021**
- Developed Judicial web Systems for U.S. Judiciary counties, enabling case document submissions, reviews, notarization, judge decisions, and warrant generation, requests and approvals, including video call integration for judges and police officers.
- Designed and implemented Healthcare Management System for insurance processing, alongside client-specific, upgrade customizations for full-stack web applications.

Projects

- Time Series Price Prediction and Feature Engineering with PySpark:
- Reinforcement Learning for Derivatives Pricing and Hedging:
- Built Generative AI model from scratch to convert text into music, producing around 50 unique music tracks using GANs:
- Developed deep CNN model for text-to-image generation, got 30% boost in image realism:
- Portfolio Optimization using Bloomberg real-time Data with Deep Learning using WCA (Wavelet coherence analysis):
- Developed and deployed Online Toll Collection using Image processing, and Traffic Prediction using Graph Neural Network reducing labor intervention by 76%.
- Completed Ant-Bot project (IIT Bombay E-Yantra Challenge), automating Ant-Bot navigation for real-time map:
- Developed AI powered gameplay with reinforcement learning. Tuned hyperparameter to optimal scale.
  Demo: youtube.com/channel/UCJjdWyLtrw7R20EbQ_Wts1A
- Built end to end full-stack Banking Website with real-time processing and handling around 900 transactions/second.

Extra-Curriculums

- **Hackathons Winner**: National Hackathon (Nov 2017), And **MLH HackNJIT 2023** (devpost.com/rrd7)
- **NJIT Investment club:** As Equity Analyst managed $75K in NJIT Investment fund.
- **Bloomberg Trading Challenge 2024**– Led team to 14% ROI on $1M virtual portfolio.
- **Internship** at COEP, Pune: Developed news classification model with regression, TF-IDF, TextRank, and OCR May-July 2018