NISHQ POORAV DESAI

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SUMMARY

Master's graduate with **4+** years of hands-on experience in data science, spanning machine learning, predictive modeling, and analytics using Python and SQL to extract insights from structured and unstructured data. Published in top-tier venues (eg. **WACV**) with **100+** citations. Strong background in statistical modeling, temporal modeling, and deep learning, with applications in video, healthcare, and data analytics. Committed to delivering scalable, data-informed solutions.

SKILLS

- **Programming Languages:** Python, SQL, R, MATLAB, C++, JavaScript
- **ML/AI Frameworks:** PyTorch, TensorFlow, Scikit-learn, OpenAI, HuggingFace, Sentence-Transformers
- **Data Science:** Statistical Modeling, A/B Testing, Feature Engineering, Model Validation
- **Data Engineering:** Pandas, NumPy, Apache Spark, Kubernetes
- **Cloud & DevOps:** AWS (Lambda, S3, EC2), GCP, Azure, MLflow, Docker, Git, Bash, CI/CD
- **Databases:** PostgreSQL, MySQL, BigQuery, NoSQL, MongoDB
- **Visualization:** Matplotlib, Plotly, Seaborn

EXPERIENCE

Graduate Research Assistant **Sept. 2022 – Feb. 2025**
Ingenuity Labs Research Institute, Queen's University *Kingston, ON, Canada*

- Built ML models for safety analytics in collaboration with City of Kingston and Geotab, processing large-scale multimodal datasets to forecast critical events.
- Created the **CycleCrash dataset** *[Code]* — **first** cyclist-focused **collision benchmark** for safety prediction with **3,000** data samples and **9** predictive modeling tasks.
- Designed **VidNeXt** *[Code]*, a custom transformer architecture focusing on temporal dynamics in multimodal data, improving classification accuracy by **23.2%** and event prediction by 7.8%.
- Developed **CollideNet** *[Code]*, a **hierarchical ML model** for live forecasting, reducing forecasting error by **30.2%** while enabling efficient GPU utilization for real-time production deployment.

AI Intern **July 2021 – Oct. 2021**
Speridian Technologies *Bangalore, KA, India*

- Conducted an empirical evaluation and benchmarking of multiple OCR methods, including deep neural networks and Pytesseract, to optimize data extraction from scanned documents.
- Selected and implemented a hybrid OCR/ML pipeline, reducing manual data entry by **43%** and embedding into an intelligent appointment scheduling chatbot API using Rasa X and NLP techniques.

EDUCATION

Queen's University **Sept. 2022 – Feb. 2025**
Master's of Applied Science in Artificial Intelligence — 4.23/4.33 GPA *Kingston, ON, Canada*

- Thesis: Advancing Spatiotemporal Learning for Cyclist Safety and Collision Forecasting in Autonomous Driving.
- **Fully funded** program sponsored by Queen's Graduate Award.

Vellore Institute of Technology University **Sept. 2018 – Sept. 2022**
Bachelor of Technology in Computer Science and Engineering — 9.16/10.0 GPA *Bhopal, MP, India*

PROJECTS

StockWellness - AI-Powered Investment Intelligence Platform *[Website]*

- Built an AI-driven investment platform that contextualizes **stock recommendations** and **price targets** by synthesizing real-time global affairs, classic investment literature, and market data to ground predictions in proven methodologies.
- Addressed market prediction challenges by combining **current geopolitical events** with time-tested investment principles, reducing noise in financial decision-making through principled AI analysis
- Engineered **multi-agent** system combining **RAG** agent (Sentence Transformers + semantic search) for literature retrieval with synthesis agent for multi-source fusion and predictive analysis with Claude 4.
- Deployed integrated system with **serverless data processing**, connecting multiple sources (news/stock APIs, PDF processing) via Flask interface, delivering live analysis in sub-30 seconds.

BiteWise - End-to-End AI-Powered Smart Dietary Assistant *[Website]* *[Code]*

- Developed an LLM agent that delivers instant, **personalized** food **suggestions** using user-specific context—health conditions, allergies, medications, and environmental values.
- Designed analytical workflows combining structured nutrition data with user profiles to enable **compatibility scoring** and **automated risk alerts** for allergies and dietary restrictions.
- Created a complete end-to-end workflow for data ingestion (via OCR/barcode scanning + OpenFoodFacts API) and delivery through a lightweight Flask web interface.

Telemarketing Success Estimation *[Code]*

- Constructed deep learning classification models using feature engineering to reduce dataset complexity from 150+ to 21 optimized features for bank telemarketing prediction.
- Achieved 91.04% training and 90.34% testing accuracy, outperforming traditional ML approaches (SVM, Random Forest, k-NN) on UCI retail banking dataset.

PUBLICATIONS

- **N.P. Desai**, M. Greenspan, A. Etemad. *"CollideNet: Hierarchical Multi-scale Video Representation Learning with Disentanglement for Time-To-Collision Forecasting."* Under Review, **AAAI**, 2026. *[Code]*
- **N.P. Desai**, A. Etemad, M. Greenspan. *"CycleCrash: A Dataset of Bicycle Collision Videos for Collision Prediction and Analysis."* **WACV**, 2025. *[Code]* *[Paper]*
- R.M. Aziz, **N.P. Desai**, M.F. Baluch. *"Computer Vision Model with Novel Cuckoo Search based Deep Learning Approach for Classification of Fish Image."* **Multimedia Tools & Applications**, 2023. *[Paper]*
- **N.P. Desai**, A. Wadhwani, M.F. Baluch, N. Mishra. *"Comparative Assessment on ML Classifiers for Cardiac Arrest Diagnosis and Prediction."* **IEEE ICSES**, 2021. *[Paper]*

MISCELLANEOUS

Research Talk **Mar. 2025**
Queen's University *Kingston, ON, Canada*

- Presented "Advancing Spatiotemporal Learning for Cyclist Safety and Collision Forecasting" to faculty, students, and researchers.

Graduate Teaching Assistant **Jan. 2023 – Sept. 2023**
Queen's University *Kingston, ON, Canada*

- Led labs for 120+ students in Computer Vision and Object-Oriented Programming with Java courses.

Academic Reviewer **Ongoing**
Reviewer for major AI/vision conferences: CVPR, ICCV, ECCV, AAAI, WACV.