NIRANJAN KUMAR KISHORE KUMAR

nkishore@mail.yu.edu Github Portfolio LinkedIn

EDUCATION

M.S in Artificial Intelligence, Yeshiva University New York, GPA: 3.79/4.00 May, 2025(expected)

Coursework: *Computational statistics & Probability*, *Machine Learning*, *Artificial Intelligence* , *Neural Networks and Deep Learning* , *Natural Language Processing* , *AI Capstone: R&D Experience*

B.E in Biomedical Engineering, Anna University India , GPA: 3.58/4.00 May, 2021

Coursework: *Human Anatomy and Physiology*, *Electronic Circuits*, *Biomchemistry* , *Pathology and Microbiology* , *Biocontrol systems*, *Digital Signal Processing* , *Medical Informatics*

RESEARCH EXPERIENCE

Independent Research August, 2024 (Current)

Katz school of Science & Health, Yeshiva University, NY New York, NY

Assisted Professor Dr. Youshan Zhang in music generation using Latent Diffusion Model:

- Finetuned a latent diffusion model with the MusicNet dataset to enhance model efficiency and scalability in music generation.
- Currently designing and implementing a custom model using **Knowledge Distillation** technique aimed at outperforming benchmark scores of state-of-the-art models, focusing on improved audio quality and generation diversity.

Machine Learning Research Intern May, 2024 - August 2024

S&P Global, Collaborated with Yeshiva University, NY New York, NY

Assisted Professor James Topor & Sr.Director of Data Science in S&P Global Yuri Katz in comparing financial time series forecasts using state-of-the-art models.:

- Conducted in-depth research on recent state-of-the-art (SOTA) **Time Series** models (DLinear & NLinear), validating their effectiveness against traditional models like ARIMA and LSTM in both accuracy and computational efficiency.
- Developed Python automation scripts for data collection and preprocessing, reducing manual tasks.
- Designed end-to-end predictive modeling pipelines for financial forecasting, improving model accuracy.
- Enhanced model performance, achieving a 4x improvement on the Exchange Rate dataset and 17x on Moody's Aaa dataset.

Research Assistant March 2020 – July 2020

Rajalakshmi Engineering College Chennai, India

Assisted Professor A. Shanthi Priya in Technology fights Covid-19: A brief overview on rapid inventions:

- Co-authored a research article published in Sambodhi (UGC Care Journal) on COVID-19 technological innovations.
- Investigated advancements in 3D printing, AI, robotics, and telemedicine during the COVID-19 pandemic.
- Identified gaps and proposed future developments in healthcare technology.

PUBLICATIONS

1. **Kumar, N.K.K**. 2024. Custom Image Segmentation Model for Visual Bird Sound Denoising. [Article]
2. **Kumar, N.K.K**. 2024. Vertebral Heart Prediction Using Deep Learning-Based Canine Cardiomegaly. [Article]
3. **Kumar, N.K.K**. 2024. Detection of Cardiomegaly in Dogs through CNNs: Comparative Analysis with VGG-16 Model. [Article]
4. Co-authored *Technology Fights Covid-19: A Brief Overview on Rapid Inventions* in Sambodhi (UGC Care Journal), covering advancements in healthcare technology during COVID-19. [Publication]

PROJECTS

Image Segmentation for Bird Sound Dataset Using Pytorch [Code]
Developed a ResNet34-based **Encoder-Decoder** model using PyTorch, achieving IoU of 0.6225 and Dice Coefficient of 0.7442

Detection of Cardiomegaly in Dogs through CNN's [Code]
Developed a custom CNN in PyTorch for canine cardiomegaly detection with 71% accuracy, comparable to VGG-16's 75%. Demonstrated efficiency with a lightweight architecture and reduced computational complexity.

Prediction of Vertebral Heart Score (VHS) using Deep Learning [Code]
Customized deep learning models, achieving 86.25% accuracy, outperforming InceptionV3, ResNet50, and EfficientNetB7 benchmarks.

Stroke Prediction - Machine Learning [Code]
Built ensemble models using SMOTE to handle data imbalance, achieving 95.94% accuracy with robust classification metrics.

Physiological Analysis in NHANES Dataset [Code]
Conducted hypothesis-driven analysis on physiological relationships using R, effectively managing data and presented results in class discussions.

Modern Technology Microphone Facemask- Prototype
Created a facemask prototype with noise reduction features using MATLAB, aimed at future AI-enabled biometric and speech translation capabilities.

FELLOWSHIPS AND AWARDS

2024 **3rd place in Cloudera AI Hackathon**, Cloudera Evolve 24 — New York, NY
2023 **1st place in Generative AI Hackathon**, UC Berkeley AI Summit — New York, NY
2023 **Artificial Intelligence Scholarship** , Master's studies, Yeshiva University — New York, NY
2020 **First place in Paper Presentation** , National Level Technical Symposium — Chennai, India

WORKING EXPERIENCE

Biomedical Data Analyst, *Billroth Hospitals* , Chennai, India — April, 2022
Sole Biomedical Data Analyst responsible for managing and analyzing data from medical equipment at a branch of Billroth Hospitals, reporting directly to Dr. Hassan, Medical Superintendent. Representative work of mine:

- Automated data collection from biomedical devices using Python ETL pipelines.
- Improved data consistency by implementing cleansing and validation processes, reducing errors by 20%.
- Developed a data visualization dashboard using Python and Power BI to monitor biomedical equipment performance, enabling proactive maintenance and enhancing equipment reliability.

SKILLS

Languages Python, R, MATLAB, SQL
Technical Skills Machine Learning, NLP, Time Series, Deep Learning, Computer Vision(Classification, Segmentation), Generative AI, Databases (MySQL, MongoDB, AstraDB), Cloud (AWS, Azure, GCP, Oracle)
Libraries & Tools NumPy, Pandas, PyTorch, TensorFlow, Keras, Scikit-learn, Docker, Kubernetes, Flask, GitHub
Soft Skills Teamwork, Communication, Problem-Solving, Creativity

CERTIFICATIONS

2024 **AWS Certified Machine Learning Engineer – Associate**, AWS Cloud
2024 **Google Cloud Generative AI Badge**, Google Cloud
2024 **Oracle Generative AI Professional Certificate**, Oracle
2024 **Machine Learning in Drug Discovery & Cheminformatics**, BDG LifeSciences Pvt. Ltd.
2023 **Humanities Responsible Conduct of Research**, CITI Program