Satvik Kishore

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EDUCATION

Duke University | *Master of Science in Data Science* **May 2023**
Courses: Data Engineering, Machine Learning, Computer Vision, Natural Language Processing (NLP), Deep Learning

Indian Institute of Technology Madras | *Bachelor of Technology in Materials Engineering* **Jul 2013 – May 2017**

SKILLS

- Python, R, SQL, PyTorch, TensorFlow, Docker, Tableau, Amazon Web Services (AWS), Flask
- **Certification:** AWS Machine Learning Specialty

PROFESSIONAL EXPERIENCE

Proofpoint Inc. & Duke University **Aug 2022 – May 2023**
Part Time Machine Learning Engineer

- Developed novel methods to reduce model prediction variance in periodically retrained Deep Learning models by 35%.
- Set-up data pipelines on AWS to benchmark and evaluate different methods to reduce model prediction variance.

Interpretable Machine Learning Lab, Duke University under Dr. Cynthia Rudin **Jun 2022 – Present**
Graduate Research Assistant

- Designed interpretable computer vision breast cancer detection models for use by radiologists, using PyTorch.
- Enhanced interpretability of the model by making it more sensitive to fine-grained features in images. Achieved state-of-the-art AUC scores of 0.95.

Data+, Rhodes Information Initiative **May 2022 – Aug 2022**
Machine Learning Engineer Intern

- Developed Machine Learning models for earthquake early warning systems set to be installed in earthquake detection facilities in Nepal.
- Implemented pipeline that inputs seismograph wave data, transforms the data to wave features, then uses the trained model to predict intensity of oncoming earthquakes to trigger alarms. Improved upon R2 scores by 30%.

St. John's National Academy of Health Sciences **Jul 2017 – May 2021**
Data Scientist

- Standardized and centralized health data from multiple sources into a single repository to be used by multiple institutions.
- Secured $200,000 in funding from the Bill and Melinda Gates Foundation to lead a project on analyzing the impact of improved household income on child undernutrition in India.
- Modelled child undernutrition in the country using Geospatial Machine Learning Models (Gaussian Process Regressions) using PyTorch. Identified three key regions with potential for 15-25% reduction in undernutrition through improved monthly income.
- **Publication**: Kishore S, Thomas T, Sachdev H, et al. Modeling the potential impacts of improved monthly income on child stunting in India: a subnational geospatial perspective. BMJ Open 2022;12:e055098.

Lighthouse Datalabs **May 2016 – Dec 2016**
Data Scientist Intern

- Developed machine learning models to help a healthcare blog client perform demographic based ad targeting.
- Trained tree-based ensemble models to classify user's age and sex, improving AUC by 10%, ad click-through rate by 5%.

PROJECTS

- **Brain Tumour image segmentation using U-nets** **Spring 2022**
  - Developed an AI tool for brain tumor image segmentation for precise neurosurgery, using TensorFlow.
  - Implemented a U-Net Deep Neural network architecture to achieve a DICE similiarity score of 81%.
- **CT Scan Imaging Optimization** **Spring 2022**
  - Optimized radiation exposure from CT scan machines, balancing image quality and lesion detection capability.
  - Trained YOLO Object detection models while simulating CT Scan parameters, reducing radiation exposure by 50%.
- **AWS Powered Tweet Generator** **Fall 2021**
  - Implemented and dockerized NLP model to retrain on fresh daily data and deployed to generate trend-relevant tweets.
  - Engineered AWS cloud solution to schedule NLP docker containers to run everyday. Brought down costs to < $1/month.