Bhargav Vankayalapati

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Education

Technische Universität Dortmund, Dortmund *July 2020 - Sep 2023*
Master of Science, Data Science

CGPA : 1.7 (German grade)

Specialization : Machine learning

Key Courses : Statistical theory, Information theory, Optimization, Advanced statistical learning, Machine learning for economic data, Statistical learning for Big data, Survival analysis, Industrial Data science.

Jawaharlal Nehru Technological University, Hyderabad *July 2013 - June 2017*
Bachelor of Technology, Information Technology

CGPA : 7.69/10

Specialization : Software engineering

Key Courses : Design and analysis of algorithms, Data structures, Database management systems, Data mining and data warehousing, Distributed operating systems, Object oriented programming, Software engineering, Software architecture, Software testing and quality assurance, Software project management.

Professional Experience

CDK GLobal (India) Private Limited, Hyderabad *Jul 2017 - Mar 2020*
Member Technical (Data Engineer)

- Contributed to the implementation of **machine learning algorithms** to provide automotive dealers with various prediction systems.
- Leveraged **lasso regression** to predict the resale value of cars and to predict the required part stockage for the dealerships.
- Investigated various data sources and formats used in competitors systems to create data extraction scripting, which increased data migration quality for new customers.
- Designed, optimized, and managed **data pipelines** to meet the needs of customers.
- Successfully implemented **automated data retrieval** from legacy systems, which enhanced efficiency and reduced the manual workload from 28 days to 8 hours.

Internship and Student work Experience

Votebase GmbH, Köln *Oct 2022*
Working student/ Product developer

- Leveraged various machine learning (ML) and **artificial intelligence** (AI) models to provide security features and uncover lead prospects and market opportunities for online election products.
- Implemented a visual ID check feature in a mobile voting application. A **deep neural network** model based on **Pytorch** was used to extract and compare face attributes from photos.
- Utilised a **sentiment analysis** model to expose the sentiments of politicians based on their statements from news and interviews.
- Contributed to CI/CD while performing product development activities such as **Back-end API development, Front-end (Flutter) development, code optimization, testing, deployment and documentation**. Git, Docker, Jenkins, **Python** (Flask), and the Flutter framework have been used.
- Participated actively in collaborative initiatives aimed at developing **innovative solutions** to business challenges through strategic planning.

Technische Universität Dortmund, Dortmund *Mar 2021 - Oct 2022*
Student research assistant, Chair of artificial intelligence (Faculty of Computer science)

- Conducted experiments, training, and optimization of deep neural networks and GANs using **PyTorch** and **TensorFlow**.
- Conceptualized and researched on the applicability of using synthetic data for improving **re-identification** model performance on unseen real-world wooden pallet blocks in warehousing logistics.

– Applied and tested the usage of the re-identification model on wooden chip pallet blocks in a warehouse context.
– Investigated several machine learning algorithms to assess **classification** performance based on multiple **KPIs** while considering the computational limitations of a robotic hand.

Technische Universität Dortmund, Dortmund *Winter 2021/2022*
Data science intern, Chair of data science and data engineering (Faculty of Computer science)

– Surveyed existing literature on various model-agnostic, **interpretable machine learning** methods to help interpret the outputs of **anomaly detection** algorithms.
– Applied the method of **prototype learning** to enable interpretation of reconstruction error-based **anomaly detection** model making use of **LSTM** and **GRU** layers for time-series data.
– The learned prototypes were presented to an industry expert, whose evaluation was used to refine the algorithm to increase the quality of prototypes learned from **time-series** data.

Technische Universität Dortmund, Dortmund *Summer 2021*
Data science intern, Statistical methods for Big Data (Faculty of Statistics)

– **Collaborated** with a journalism intern to produce a sports article to prove a myth related to motor sports, which was published in the sports magazine (Kurt digital).
– Core NLP was used to do **sentiment analysis** on race-related comments from YouTube and tweets from Twitter to quantify viewer engagement alongside broadcast viewership data.

Papers and publications

On the prediction of unreliable uncertainty estimates through density-based OOD detection (Master's Thesis) *Aug 2023*
Technische Universität Dortmund

– An approach to implementing a separated rejector for **classification models** with **unreliable uncertainty estimates**.
– A separated rejector, which is a combination of **VQVAE** and **PixelSNAIL** models, estimates the data's in-distribution as a **discreet distribution** and is used to reject out-of-distribution data.

On the Applicability of Synthetic Data for Re-Identification in Warehousing Logistics. *Dec 2022*
Technische Universität Dortmund

– Accepted as non-archival at the 37th AAAI conference on Artificial Intelligence. https://doi.org/10.48550/arXiv.2212.10105

Other Projects

Hand gesture recognition *Mar 2021*
Technische Universität Dortmund

– Carried out an experimental project aimed at constructing a sign language alphabet detector using hand **gesture recognition**, utilising OpenCV and Mediapipe frameworks.

Faulty sensor detection *Jul 2019*
CDK Global, Hyderabad

– Employed **cost sensitive loss** on the Resnet50 model, **transfer learning** was applied to improve the classification accuracy of faulty parts image data with **class imbalance**.

Achievements and Skills

Shining star award at CDK Global, Dec 2018.

Contributed to company social responsibility activities at CDK Global.

Department representative and cricket team captain at Jawaharlal Nehru Technological University, Hyderabad.

Certifications

Cognitive class certificate in Hadoop 101 a course offered by IBM.

Certification from coursera on Machine learning course offered by stanford university.

Skills : Data Visualization, Data analytics, Data processing, Data management, A/B testing, Python, SQl, NoSQL, Data warehouses, R, Machine Learning, Jupyter notebooks, numpy, scipy, pandas, scikit-learn, Keras, Tensorflow, Pytorch, MLFlow, Databricks, Pyspark, Jupyter notebooks, Docker, Kubernetes, Agile methodologies, Git, Gitlab, Jenkins, AWS, DevOps.