Pooja Vasant Pathare

Thunder Bay, Ontario | poojavpathare@gmail.com | +1-807-356-3789 | LinkedIn

Education

Lakehead University | **Master of Science in Computer Science (CGPA: 4.0/4.0)** *2023 – 2025*

Coursework: *Big Data, Artificial Intelligence, Pattern Recognition, Computer Network, Computer Vision, Research Methodology, Mobile Programming, Ethical Issues*

University of Mumbai | **Bachelor of Engineering in Computer Engineering (CGPA: 8.3/10)** *2019 – 2023*

Coursework: *Data Structures, DBMS, Algorithms, AI/ML, Operating Systems, Big Data, Computer Networks*

Experience

Machine Learning Engineer Intern *Jun 2025 – Present*

Vosyn Inc.

- Assist in designing and implementing machine learning algorithms and models.
- Collaborate with data scientists to preprocess and analyze data for model training.
- Evaluate model performance and refine algorithms to improve accuracy and efficiency.
- Participate in the deployment of machine learning solutions into production environments.
- Conduct experiments and document findings to support decision-making processes.
- Stay current with the latest advancements in machine learning and AI technologies.

AI-ML Intern *Aug – Nov 2022*

D. Y. Patil University,Navi Mumbai, India

- Performed analysis on historical stock price data spanning three months for major tech companies like Apple, Microsoft, Netflix, and Google, utilizing Python and the Yahoo Finance API, achieving an impressive 90% average accuracy. Represented insights by using a dashboard through Tableau, Power BI, and Excel.
- Implemented a Long Short-Term Memory (LSTM) based machine learning model to analyze historical data, identifying patterns that could potentially enhance short-term stock price prediction accuracy by 4%.
- Conducted a correlation analysis between the stock prices of Apple and Microsoft, revealing a strong positive correlation of 0.85, indicating significant similarities in their price movements. This insight suggests potential diversification opportunities for investors looking to mitigate risk in their portfolios.

Projects

Enhancing Visual Speaker Authentication Using Dynamic Lip Movement Analysis and Meta-Learning | *MAML, Optical Flow, 3D CNNs*

- Developed advanced few-shot learning methods (Model-Agnostic Meta-Learning - MAML) combined with dynamic optical flow analysis, significantly reducing user registration data requirements.
- Engineered robust authentication systems using advanced 3D convolutional neural networks (CNNs) and meta-learning, enabling rapid adaptability to new users with minimal data.
- Achieved exceptional validation accuracy of 99% on the GRID dataset under speaker-disjoint scenarios, significantly outperforming traditional CNN models.
- Demonstrated superior spoof detection with an Area Under Curve (AUC) of 0.92, effectively distinguishing genuine speakers from sophisticated Deepfakes.

Protein Classification Strategy | *PySpark, NumPy, Matplotlib, PySpark.ml, Scikit-learn, Spark*

- Developed a robust strategy for classifying proteins, addressing the complexities of data processing across the 5 V's (Volume, Velocity, Variety, Veracity, and Value).
- Managed data loading, preprocessing, and feature extraction using PySpark, NumPy, and PySpark.ml for scalability and performance.
- Employed Matplotlib for advanced data visualization and conducted comprehensive EDA to uncover biological data insights.

Student Performance Indicator | *Pandas, NumPy, Matplotlib, Seaborn, Python*

- Built a machine learning lifecycle pipeline to assess student performance based on demographics and educational variables.
- Performed detailed EDA, feature engineering, and insights extraction from 1,000 records covering gender, parental education, lunch, and test prep course.

- Added computed features for total score and average, analyzed outliers and correlations, and visualized multivariate impacts using Seaborn and Matplotlib.
- Key insights included better average scores by females, high math performance in males, and benefits of standard lunch and test preparation.

Publications

Pooja Vasant Pathare, et al.
"Enhancing Visual Speaker Authentication Using Dynamic Lip Movement Analysis and Meta-Learning"
Accepted at **IEEE PST 2025 (Privacy, Security and Trust)**, to appear in IEEE Xplore.

Skills

Programming: Python, SQL, HTML, CSS, JavaScript (basic)
Data Analysis & Visualization: Pandas, NumPy, Matplotlib, Seaborn, Power BI, Tableau, Excel
Machine Learning: Scikit-learn, basic understanding of Deep Learning (working on improving)
Databases: MySQL, Firebase (basic)
Tools: GitHub, Jupyter Notebook, VS Code
Currently Learning: PySpark, Cloud Platforms (AWS/GCP), MLOps

Certifications

- Supervised Machine Learning: Regression and Classification – DeepLearning.AI
  Completed: Nov 2022 Grade: 100%
  Coursera Certificate
- Advanced Learning Algorithms – DeepLearning.AI
  Completed: Nov 2022 Grade: 99.6%
  Coursera Certificate
- SQL 50 Certification – LeetCode
  Completed: [June 2025]
  LeetCode Certificate

Achievements

Finalist, GDSC DevFest Hackathon – *Lakehead University* *2023*
Collaborated in a 6-member team to develop "Jarvis Lite," a web platform connecting students and supervisors based on shared research interests.