# Jay Jajoo

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## Education

**Northeastern University (Khoury College) - Boston, MA** **CGPA – 4.0/4.0**
**Masters of Science in Data Science** **Sept 2024 – Dec 2026**
Course Work :- NLP, Algorithms, Supervised Machine Learning, Data Management and Preprocessing

**Vellore Institute of Technology – Tamil Nadu, India** **CGPA – 9.05/10**
**B.Tech. in Computer Science and Engineering** **Sept 2020 –May 2024**
Course Work :- Machine Learning , Statistics, DBMS, OS, COA, DSA, Parallel Programming and Paradigms

## Technical Skills

**Languages:** Python, Javascript, C++, Java, HTML, CSS, MySQL, C
**Frameworks**: Flask, React, Node.js, Express.js, MongoDB
**Libraries**: TensorFlow, Py-Torch, NumPy, Pandas, Scikit-learn, Keras, NLTK, PySpark
**Developer Tools**: Git, AWS, Google Collab, Kaggle, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse,

## Experience

**Data Science Intern –** *Imagine Web Technologies* **Jan 2024 – Jul 2024**

- Curated, refined, and processed diverse customer data, conducted comprehensive exploratory data analysis (EDA) to extract pivotal insights, and engineered advanced features to drive predictive excellence.
- Architected and deployed a Feedforward Neural Network in PyTorch, achieving an F1 score of 0.89 for customer conversion prediction, while optimizing model architecture and hyperparameters to ensure sustained high performance.

## Projects

**Home Anomaly Detection** | *Py-Torch, LSTM Autoencoder* **Sept 2024 – Dec 2024**

- Consolidated and analyzed data from 30 text files, performing data cleaning, feature extraction, and preprocessing, followed by evaluating three anomaly detection models: **Isolation Forest, DBSCAN, and LSTM Autoencoders.**
- Attained exceptional performance in anomaly detection through LSTM Autoencoders, ensuring minimal reconstruction errors and defining a precise threshold at the 95th percentile, culminating in a threshold for reconstruction error of 0.016%.

**Object Detection and 3D coordinates prediction (ML)** | *Python, Mi-DAS, Yolo* **Sept 2024 – Dec 2024**

- Integrated **YOLOv8** for object detection and **MiDaS** for depth estimation, delivering effective real-time 3D perception for autonomous driving, despite a depth prediction loss of approximately 130 meters per image.
- Conducted training of YOLOv5 and YOLOv8 models with various configurations, where YOLOv8 Medium (no data augmentation) achieved optimal performance with precision of 0.9418, recall of 0.8908, mAP50 of 0.9391, and mAP50:90 of 0.889.

**Fungi Classification using Deep Learning (ML)** | *Tensorflow, VGG156, ResNet50, IncV3* **Dec 2023 – May 2024**

- Engineered a highly accurate **ResNet** deep learning model for fungal classification, achieving 98.90% accuracy. Fine- tuned hyper-parameters to optimize the model's performance, reaching 92.29% accuracy and 90.46% precision.
- Presented a **research paper** on this project, accepted for publication in **Springer's IDBA 2024**. Received commendation for the innovative approach, with 85% of attendees expressing interest in future collaboration.

**Metamorphic Malware Detection using RNN's (ML)** | *Tensorflow, LSTM, Bi-LSTM, GRU* **Jan 2023 –Mar 2023**

- Hyper-tuned **RNN models**, including **LSTM, Bi-LSTM, GRU**, to enhance metamorphic malware detection, achieving 93.25% accuracy and surpassing other RNNs. Key processes encompassed data visualization, hybrid model development.
- **Submitted research** on RNN performance at **IEEE ICDSNS 2023**, with findings published on 26 Sept 2023. The project showcased significant advancements in malware detection, earning positive recognition within the academic community.

**Simplify Amazon (ML and Web Dev)** | *Express.js, React.js, Python* **Jan 2023 – Mar 2023**

- Automated the extraction of product reviews from Amazon via advanced web scraping techniques using BeautifulSoup. Logistic Regression was utilized to classify sentiments, resulting in 91% accuracy.
- OpenAI API was employed for generating overall product summaries from user comments. Data visualization was achieved with Chart.js and D3.js, leading to a 25% reduction in analysis time.

## Achievements

- **Certified AWS Solutions Architect:** Successfully completed AWS Solutions Architect certification with a score of 793 out of 1000, achieving competencies in all parameters required by the certification.
- **Published Research Paper in IEEE - ICDSNS 2023:** Exhibited research paper titled Performance Comparison of RNNs for Metamorphic Malwares at the distinguished IEEE conference ICDSNS 2023, published in the IEEE index on 26 Sept. 2023.