Manu Somasagar Kamalakar

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Professional Summary

Experienced product lead engineer and senior machine learning engineer with over 5 years of expertise in developing and deploying machine learning applications. Adept at project management, team leadership, and stakeholder collaboration to drive innovation and success. Skilled in leveraging advanced AI technologies such as deep learning frameworks (PyTorch, TensorFlow), data manipulation tools (NumPy, Pandas), and containerization platforms (Docker, Kubernetes). Proficient in implementing supervised and unsupervised learning models, anomaly detection algorithms, and federated machine learning techniques.

Work Experience 5 Years

Fraunhofer ITWM – Kaiserslautern, Germany

Product Lead Engineer *Jan 2024 – Present*

- Leading the development of a machine learning-based application to optimize financial projections and reporting across diverse car markets.
- Developing an automatic evaluation method to detect price adjustments in car market data, reducing potential financial risks by approximately 10%.
- Building forecasting models, warning systems, and interactive R-shiny dashboards.
- Implementing back-testing functionalities to evaluate the performance and efficiency of ML models.
- Performing requirement analysis and stakeholder collaboration to align objectives, client needs, and development timelines within the SDLC.

Senior Machine Learning Engineer *Oct 2021 – Dec 2023*

- Designed and implemented a novel metric to:
  - Measure dataset similarity between private and public datasets.
  - Evaluate the similarity between anomaly detection algorithms.
  - Identify the potential best anomaly detection algorithms for unsupervised data.
- Built an ML-based fraud detection system for a prominent European car manufacturer.
- Worked on an application that forecasts failure rates of cars using Weibull analysis, boosting resource allocation by 10%.
- Developed a Federated Machine Learning model for an IoT use case, ensuring data privacy.
- Utilized Docker and Kubernetes for ML pipeline construction and CI/CD implementation.

Société Générale GSC - Bengaluru, India

Software Engineer *Apr 2017 - Aug 2019*

- Created a Flask application to facilitate the source code migration from SVN to GitHub.
- Mentored multiple teams on DevOps principles, leading to a 25% increase in CI/CD adoption.
- Architected CI-CD pipelines for multiple teams, leveraging industry best practices and automation, achieving a 20% faster application delivery.
- Implemented automated testing using industry-standard tools such as Selenium and UFT.

Education

RPTU Kaiserslautern, Germany
M.Sc. Computer Science *Oct 2019 - Sep 2021*

KSIT, Bengaluru, India
B.E. Computer Science and Engineering *Aug 2012 - Aug 2016*

Projects

- **Master's Thesis:** Federated Learning for Fraud Detection - Developed a federated learning model to detect fraud in financial transactions, addressing security, and privacy challenges.
- **Master's Project:** Deep Digit Recognition- Designed a model to recognize and locate digits in natural scene images.
- **COVID-19 Prediction:** Analyzed data and created SIR models to simulate the spread of the virus.
- **Bachelor's Project:** A Data Mapping Strategy for Parallel Data Mining Nodes in Grid Connected to a Storage Cloud.

Skills

Technical Skills:

- Research, Machine Learning, Deep Learning, Artificial Intelligence.
- Supervised ML, Unsupervised ML, Anomaly Detection, Federated Machine Learning.
- Data Science, Data Analysis, Data Visualization, Time Series Analysis.

Frameworks and Libraries:

- PyTorch, TensorFlow, NumPy, Pandas, Scikit-Learn.
- Django, Flask, R-Shiny, CUDA, Open-CV, Git.

Management:

- Scrum, Agile, Leadership, Time Management, Problem Solving, Jira, Confluence.

Programming Languages: Python, R, Bash, SQL.

DevOps and CI/CD: Docker, Docker Compose, Kubernetes, Jenkins, Ansible.

Other Achievements

- Writing research papers in the fields of anomaly detection, ML, and data science.
- Presented a talk at the "ICORS meets DSSV 2024" conference in Fairfax, Virginia.
- Participated in the All-India DevOps Conference conducted by the DevOps Institute.

References

- Dr. habil. Jörg Wenzel, Fraunhofer ITWM, Head of the Department of Financial Mathematics.
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- Nivarti Jayaram, Société Générale Global Solution Centre, Delivery Head and Chief Data Officer.
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