PAVITHRA KANDHASAMY SELVARAJ

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PROFESSIONAL EXPERIENCE

Ford Motor Private Limited, Chennai, India| *Software Engineer (AI/ML) – Ford Credit* **January 2022 - Present**

- Designed and implemented a Machine Learning model to improve the efficiency and effectiveness of collections efforts by determining the most optimal communication channel and timing for soliciting a response from delinquent customers
- Applied Data Preprocessing techniques and chose Random Forest over other models, initially achieving 72% accuracy; enhanced the model with feature selection and hyperparameter tuning, boosting accuracy by 11%
- Deployed the solution successfully by gradually increasing to 50% of the customers, resulting in a 66% reduction in contact frequency while maintaining collections effectiveness and increasing customer satisfaction
- Migrating the application from PCF to Google Cloud Platform, using Cloud Run and Cloud Scheduler, resulting in a 45K USD annual cost reduction through database migration from On-Prem SQL Server to PostgreSQL
- Streamlining cloud deployments across environments by implementing Terraform for code reusability, reducing provisioning time by 67%, and a Tekton CI/CD pipeline for automating application deployment

Ford Motor Private Limited, Chennai, India| *Junior Engineer (AI/ML) – Ford Credit* **July 2020 - December 2021**

- Developed a Python application to contact over 10k past-due customers daily, utilizing a rules-based system to determine optimal contact timing and channel (phone/SMS) based on frequency, time restrictions, and state-specific regulations
- Stored contact history in a robust On-prem SQL Server database containing over 1 million records, enabling tailored communication based on individual customer interactions and preferences
- Assigned to implement a data-driven approach by collecting and analyzing data from over 5 different systems, identifying key factors influencing payment behavior and customer trends
- Informed the development of machine learning models, enhancing forecasting capabilities and providing a deeper understanding of customer behavior
- Tasked with designing and employing a deployment strategy for the Flask application, utilizing a Jenkins CI/CD pipeline for automated deployment on Pivotal Cloud Foundry, reducing deployment time to under 10 minutes
- Integrated Splunk for continuous monitoring, resolving 90% of issues within 24 hours through proactive identification and resolution of errors or failures

EDUCATION

Coimbatore Institute of Technology, Coimbatore, India **September 2020**

Secured a Bachelor of Engineering in Computer Science with *Distinction* **(CGPA 3.6/4)**

PROJECTS

Question your Dataset using LLM

- Set up an LLM-based system for real-time data querying using natural language, enabling the model to analyze data, generate insightful follow-up questions, and guide users to key findings, using Python, Vertex AI, PaLM 2, Pandas, PySpark, LangChain, and Flask
- Presented the project at a global Ford GCP/LLM hackathon (2024)

Meeting to Article Content Generation

- Programmed an LLM-based article generator that transcribes meeting audio, identifies relevant information, and formats it into articles, streamlining content creation using Python, Vertex AI, Gemini Pro, GCS, and Flask
- Participated in a global Ford GCP/LLM hackathon (2024)

Accessing Knowledge Articles using LLM

- Engineered a multi-lingual LLM-powered prototype for accessing knowledge articles, improving user experience by enabling seamless search and retrieval of information in lengthy documents using Python, LangChain, Vertex AI, PaLM 2, and Gradio
- Presented the project at a Ford Credit LLM hackathon (2023)

Car Insurance Cold Calls Prediction

- Built an XGBoost model with 89% accuracy to predict Car Insurance purchases from cold call data using Python, machine learning libraries, and Jupyter Notebook, optimizing outreach strategies and improving customer retention
- Won an award in the Ford Credit ML hackathon (2022)

TECHNICAL SKILLS

- Languages: C, Python, HTML, CSS, JavaScript, SQL, Terraform
- Tools and Technologies: ML, DL, LLM, PCF, GCP, Jenkins, Tekton, Docker, Git, Excel, Flask, Pandas, NumPy, Sklearn, Seaborn, Matplotlib, PySpark, Keras, TensorFlow, Jupyter, VertexAI, PostgreSQL, BigQuery, Postman, Splunk, Pgloader

EXTRACURRICULAR ACTIVITIES

- Certified as a Google Cloud Digital Leader (2022)
- Functioned as a Global Caring Month Volunteer; supported underprivileged and visually impaired students through educational activities, storytelling, and audiobook creation, fostering creativity and accessibility– Ford (2021)
- Served as the Department Symposium Coordinator; led workshop logistics, speaker arrangements, and registrations for two years, improving organizational, leadership, and networking skills through seamless event execution– Coimbatore Institute of Technology (2018)