Anant Vignesh Mahadhevan

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SUMMARY

Senior Machine Learning and AI Engineer with 6 years of experience designing innovative AI solutions to address complex business challenges. Proven expertise in building scalable ML pipelines, fine-tuning LLMs for production-grade Chat systems, and achieving measurable outcomes, such as a 50% increase in operational efficiency for customer chat services. Skilled in leading diverse teams, mentoring engineers, and delivering transformative results using Generative AI, NLP, computer vision, frameworks like PyTorch and Hugging Face, and cloud platforms such as VertexAI.

SKILLS

- **Programming-** Python, C#, Java, C++

- **Frameworks-** Pytorch, Tensorflow, Keras, Transformers, LangGraph, LlamaIndex

- **Libraries-** Sentence Transformers, PEFT, Spacy, Scikit-learn, Gensim, Stanza NLP

- **Database-** PostgreSQL, BigQuery, MySQL

- **Cloud Platform-** GCP, VertexAI, Microsoft Azure

EDUCATION

Masters In Project Management   **GPA: 3.67**
Univ. Of The Cumberlands | Williamsburg, KY
Jun 2023 - Dec 2024

Masters In Computer Science   **GPA: 3.41**
Texas Tech University | Lubbock, TX
Aug 2018 - May 2020

Bachelors In Computer Science   **GPA: 3.70**
Anna University | Chennai, India
Jul 2013 - Apr 2017

CERTIFICATION & COURSES

GCP Cloud Digital Leader Certification
Google |DOI: Dec 2022 **| DOE:** Dec 2025

ChatGPT Prompt Engineering For Developers
DeepLearning.AI | Short Course

Langchain For LLM Application Development
DeepLearning.AI | Short Course

WORK EXPERIENCE

Ford Credit | Sr. Research Analyst (ML/AI)   **Mar 2021 - Present**
Dearborn, Michigan

- Spearheaded the design, development, and deployment of Ford Credit's primary customer service chatbot using MS Bot Framework V4 and Azure Bot Service, reducing the traffic deflection to the live agent queue by 50%.

- Built an Agentic AI chatbot using LangGraph and Gemini 1.5 Flash LLM for Business Intelligence, querying databases (Postgres, BigQuery), analyzing data, and visualizing insights, reducing time for data analysis by 40%.

- Designed and deployed a high-accuracy LangGraph AI agent to automate policy data extraction from legal GAP addendums, achieving over 95% accuracy and delivering an estimated annual cost saving of nearly $1M for the legal team.

- Expertise in supervised fine-tuning of open-source LLMs (e.g., Gemma, Llama) for alignment via Direct Preference Optimization (DPO), achieving 30% higher instruction adherence and 40% fewer safety violations for tasks such as document summarization, and compliance Q&A.

- Fine-tuned Florence-2 VLM on DocLayNet dataset to achieve 89% accuracy in extracting text, tables, and images from PDFs and PPTs, improving complex document parsing efficiency on PDFs and PPTs by 80%.

- Developed a scalable Document Parsing Platform to process unstructured data (PDFs, Word, PPTs, Excel, Images), vectorize parsed information, and store it in a Postgres Vector Store for RAG. Leveraged fine-tuned Florence-2 VLM for accurate image and table extraction.

- Trained Multi-Class Text Classifiers by fine-tuning SBERT models using SetFit few-shot learning methodology and deployed the best model as an API to classify customer messages in Chatbots with 90% accuracy.

Nemalife Inc. | Machine Learning Engineer   **Jul 2020 - Feb 2021**
Lubbock, Texas

- Trained a Deep Learning Model using VGG16 architecture to detect undesirable worm movement in the experimental videos with 92% accuracy.

- Automated the process of worm tagging and activity detection with Computer Vision models using YOLO V3 and RESNET50 with 91% accuracy.

- Designed an Image Labeling Application using PyQT5 and OpenCV to annotate and curate training datasets by performing image processing operations such as Thresholding, Segmentation, and Augmentation.

Truno | Machine Learning Intern   **May 2019 - Aug 2019**
Lubbock, Texas

- Trained a Text classification and clustering model to reduce the number of duplicate support tickets by 80% & deployed the script on an AWS EC2 instance.

- Forecasted sales and revenue using Time Series Analysis using statistical modeling, and ML techniques, with a forecasting accuracy of 90%.

- Collaborated with the MLOps team in the process of code verification, Docker containerization, & deployment by creating CI/CD pipelines using Bitbucket.

Prodapt Solutions | Software Engineer   **May 2017 - Jun 2018**
Chennai, India

- Built Classification models by performing Data Labeling, Data Cleaning, EDA, and Hyperparameter tuning to achieve 92% recall and 79% precision.

- Analyzed Telecom data on Data Plans using Tableau to identify critical areas to focus which improved customer satisfaction by 10%.

- Created scalable applications using Python & MySQL Procedures, and gained experience in the complete SDLC involving Agile/Scrum methodologies.