POORNA PRANEESHA D

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Senior AI Engineer at Hivepath with 6+ years in industrial roles. Building AI solutions to enhance customer experiences.
Focus Areas: *Deep Learning, Generative AI, PEFT (LoRA, RLHF, PPO), RAG.*

EDUCATION

B.Tech. Chemical Engineering - Sri Venkateswara University, India   *2013 - 2017*
Courses: Data Structures, C, C++, Algorithm, Calculus, Python Programming, Javascript, MATLAB
CGPA: 7.29/10 (Distinction)

Online. Data Structures Specilization - University of Colorado Boulder, Online CourseWork   *2024-present*
Courses: Data Structures, Dynamic Programming, Linear Programming Algorithm, Greedy Algorithm, Linear Algebra.
Grade: 100%

AI COURSE WORK: (COURSERA, DEEPLEARNING.AI

1. Generative AI with Large Language Models - Link
2. Supervised Machine Learning - Link
3. Approximation Algorithms and Linear Programming - Link
4. Advanced Learning Algorithm - Link
5. Dynamic Programming, Greedy Algorithms - Link
6. Algorithms for Searching, Trees and Graphs - Link

WHITE PAPERS

1. Autonomous Multi-Agent System Using LLM - Link
2. AI Compute, a technical deep dive - Link
3. Data Loss Protection - Link
4. MultiChannel Ecommerce - Link
5. Messaging App - Link
6. Data Tech Stack - Link

RESEARCH WORK

1. Computer Vision Application - Link
2. AI Inference - Link
3. Transformers Variants - Link
4. Chat Bot Using Deep Learning - Link

AI PROJECTS

AI Agents - LangChain   GitHub Link

- Implemented end-to-end Retrieval-Augmented Generation (RAG) using Langchain and Openai APIs.

Key Skills: Python, Langchain, RAG Systems, VectorDB, Inferences.

Transformer Architecture - GPT   GitHub Link

- **Tokenization:** Implemented BPE with regex preprocessing to optimize input text representation. BPE reduces vocabulary size by 40% through iterative merging of frequent byte pairs, while regex normalization enhances segmentation and addresses rare words. This integration results in a 30% reduction in out-of-vocabulary errors.
- **Multi-head Attention(MHA):** Integrated MHA enables the model to attend to various parts of the input sequence simultaneously, dividing embeddings into query(q), key(k), value(v), resulting in more coherent and relevant text generation.

Key Skills: Python, Transformer Architecture, Multi-Head Attention, PyTorch, NLP, Model Training, Tokenomics.

Byte Pair Encoding(BPE) - GPT   GitHub Link

- **BPE:** Adapted BPE with regex preprocessing to optimize input text representation. BPE reduces vocabulary size by 40% through iterative merging of frequent byte pairs, while regex normalization enhances segmentation and addresses rare words.
- This integration results in a 30% reduction in out-of-vocabulary errors and boosts encoding efficiency by 25%.

Key Skills: Tokenomics, Regex, PyTorch, Python

Tiny Machine Learning - TinyML   GitHub Link

- Gained expertise in model quantization techniques, reducing precision and optimizing models for low-power, memory-constrained devices, alongside transfer learning for adapting pre-trained models to acoustic, image, and sensor data.
- Developed TinyML applications in image recognition, audio processing, and gesture detection using Arduino hardware, focusing on the efficient deployment of machine learning models to edge devices.

Key Skills: Python, Quantaisation, TensorFlow, TensorFlow Lite, TensorBoard, Google Colab, and Jupyter Notebook

Automatic Blog Creation and Categorization - Lattis   [Demo Link](#)

- Leveraged the OpenAI API to dynamically generate blog content, utilizing prompts and context for coherent and contextually relevant posts, emphasizing iterative refinement and fine-tuning for optimal output.Developed a blog editor and grouped them into segments, like "Frequent Shoppers" or "Tech Enthusiasts," based on behaviours and preferences.

TECHNICAL SKILLS

Programming languages/ packages	Python, R, Reactjs, Nextjs, Java, Scala, Haskell, Javascript
Deep learning	Pytorch, Tensorflow, ONNX, CUDA, torchvision, Hugging Face, Langchain, Pinecone
Database	Oracle database, MySQL, GitHub, Bitbucket, CircleCI, Heroku, Mandrill,Docker

EXPERIENCE

Senior AI Engineer - Hivepath, Bangalore, India   Sep 2021 - Present

· Working towards enabling intelligence in autonomous AI Agents for business.

Key Contributions

1. Lattis   A Platform OS for all your customer interactions with AI Agent - Link
2. Hivepath   Professional networking Platform - Link
3. Calpad   A calendar booking platform for the professionals - Link
5. Zello   Andriod photo widget sharing platform - Link
5. Styler   A B2B SaaS platform for beauty and Fashion Industry - Link

AI Model Development:

- Involved in the entire spectrum of AI model development, including conceptualization, deployment, instruction tuning, RLHF, and parameter-efficient fine-tuning.
- Leveraged API interaction, prompt engineering, and Retrieval-Augmented Generation (RAG) to define the landscape of autonomous AI agents.
- Constructed the End-to-End pipeline, integrating multiple Language Model (LLM) models (GPT-4, Llama 2).

Continuous Improvement and Responsible AI Implementation:

- Contributed to the gathering, construction, and annotation of domain-specific datasets. Enhanced the training of LLMs for a wider range of tasks and applications.
- Adapted and integrated a small LLM to enhance the ecosystem of responses.Actively measured and benchmarked model and application performance, analyzing accuracy and bias.
- Established a framework for questions and responses, conducting LLM evaluations based on question coverage and response quality. Implemented continuous improvements in AI models and maintained model evaluation systems.

AI Engineer - Shopconnect, Bangalore, India   Sep 2020 - Aug 2021

- Implemented CNN based architecture models(ResNet, VGGNet) for object classification problems.
- Implemented YOLO algorithm for applying in retail domain - Customer Behavior Analysis, Foot Analytics, Inventory stock analysis.
- Presented recommendations on retail analytics based on computer vision technologies - Monitoring store traffic (at various customer touch points)..

Intern — Crafter, Hyderabad, India   May 2019 - June 2019

- As the sole developer on the project, assumed full responsibility for leading the engineering strategy and making technology decisions independently, ensuring efficient and effective project execution...
- Proactively seeking feedback and input from the executive team and reflecting in the product Frontend..

Software Engineer — Bluecom, Bangalore, India   June 2017 - April 2019

- Engineered an AI-powered e-commerce tool forseamless multi-channel Product Information, Inventory and POM .
- Integrated multiple third-party APIs, for product, inventory, order data from Shopify, Woocommerce, and Bigcommerce. Optimize backend systems and database architecture for scalability to handle increased data volumes.
- Optimized and automated business logic for the core marketing experiments, including A/B testing..

ACHIEVEMENTS

Best Employee Award Certificate	Received the Best Employee Award in June 2022.
WorldQuant Certificate	Outstanding Performance Award (**3rd Position**).