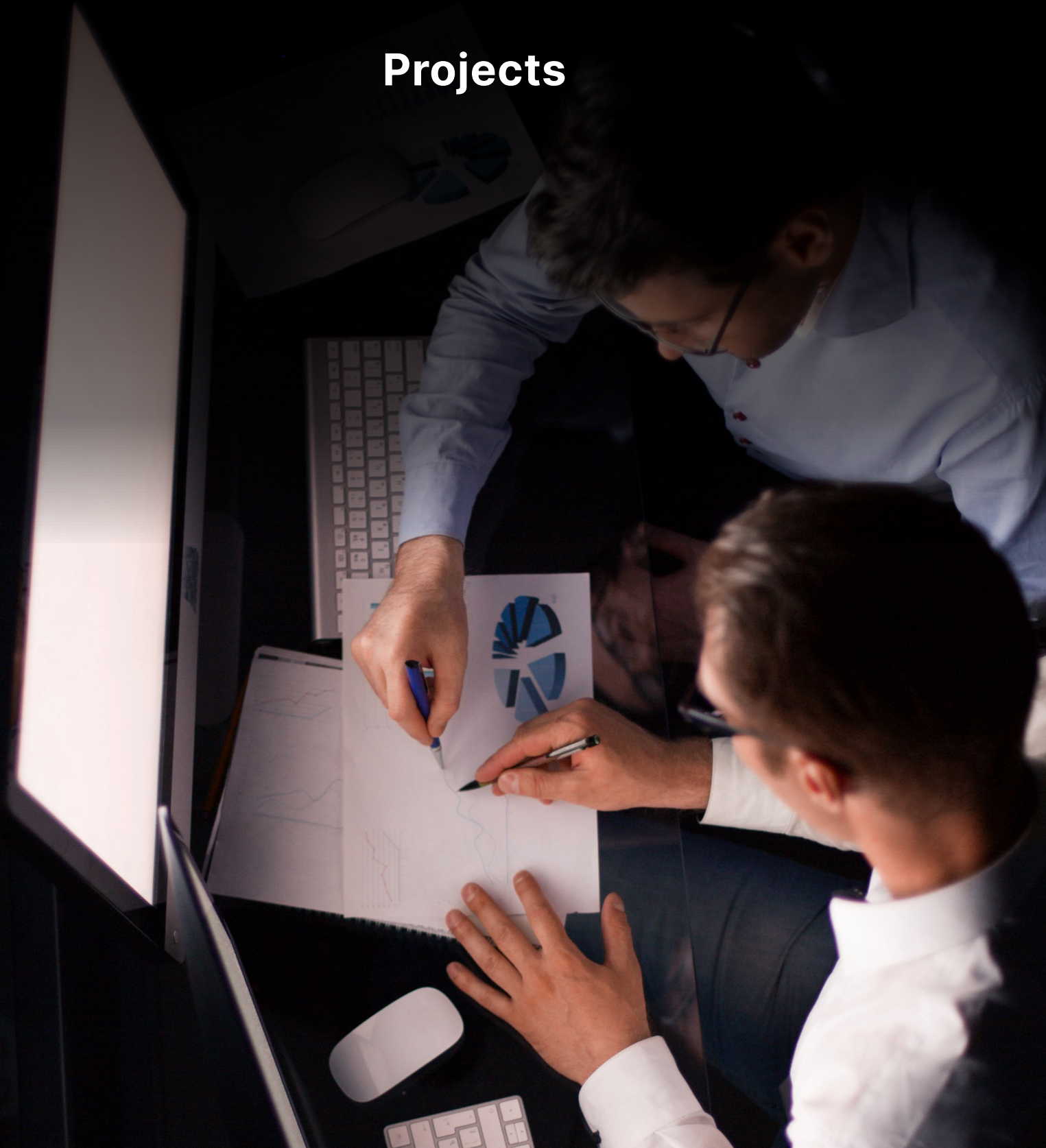




GenAI **Pinnacle** Program

Revolutionizing AI Learning & Development

Projects

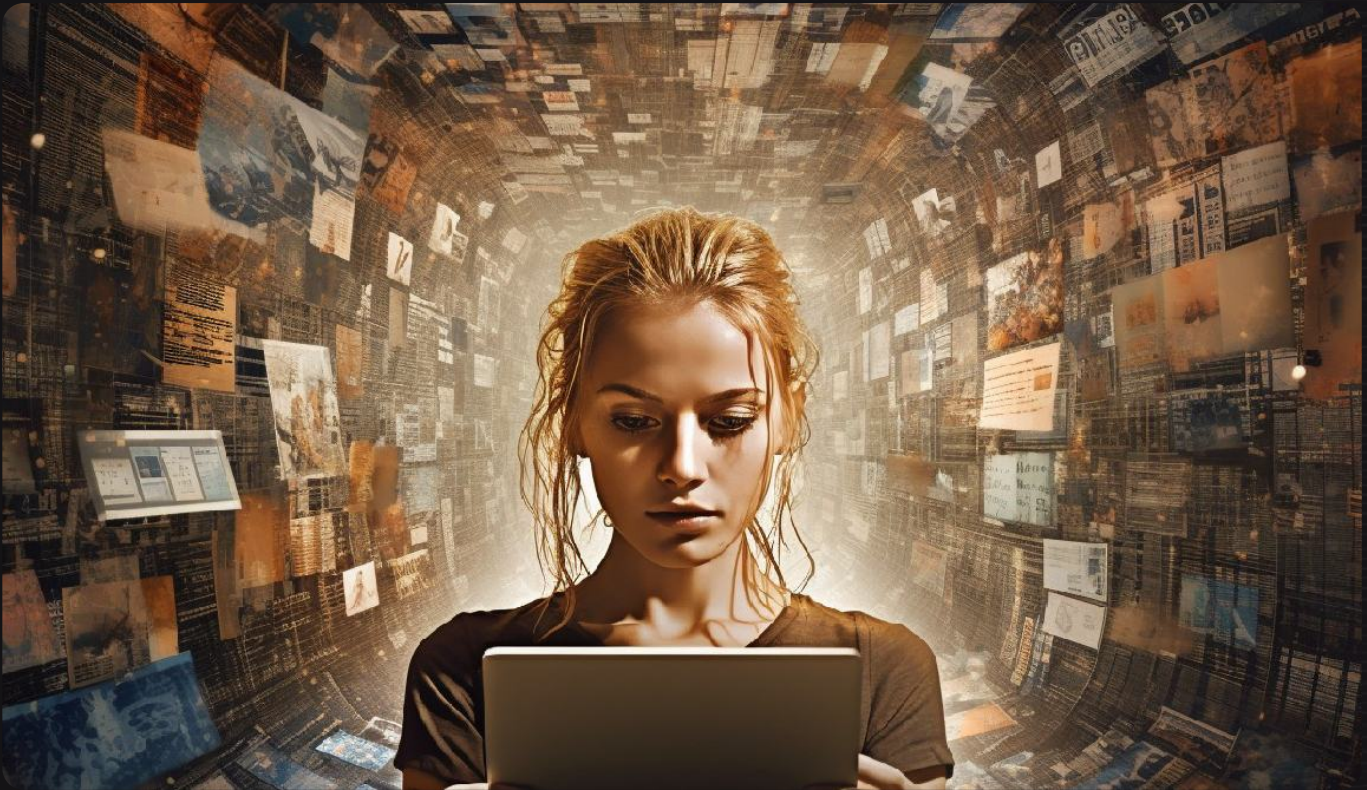


Projects Introduction

GenAI Pinnacle Program focuses on immersive projects that bridge the gap between theoretical knowledge and practical application, ensuring you're industry-ready by solving real-world problems.

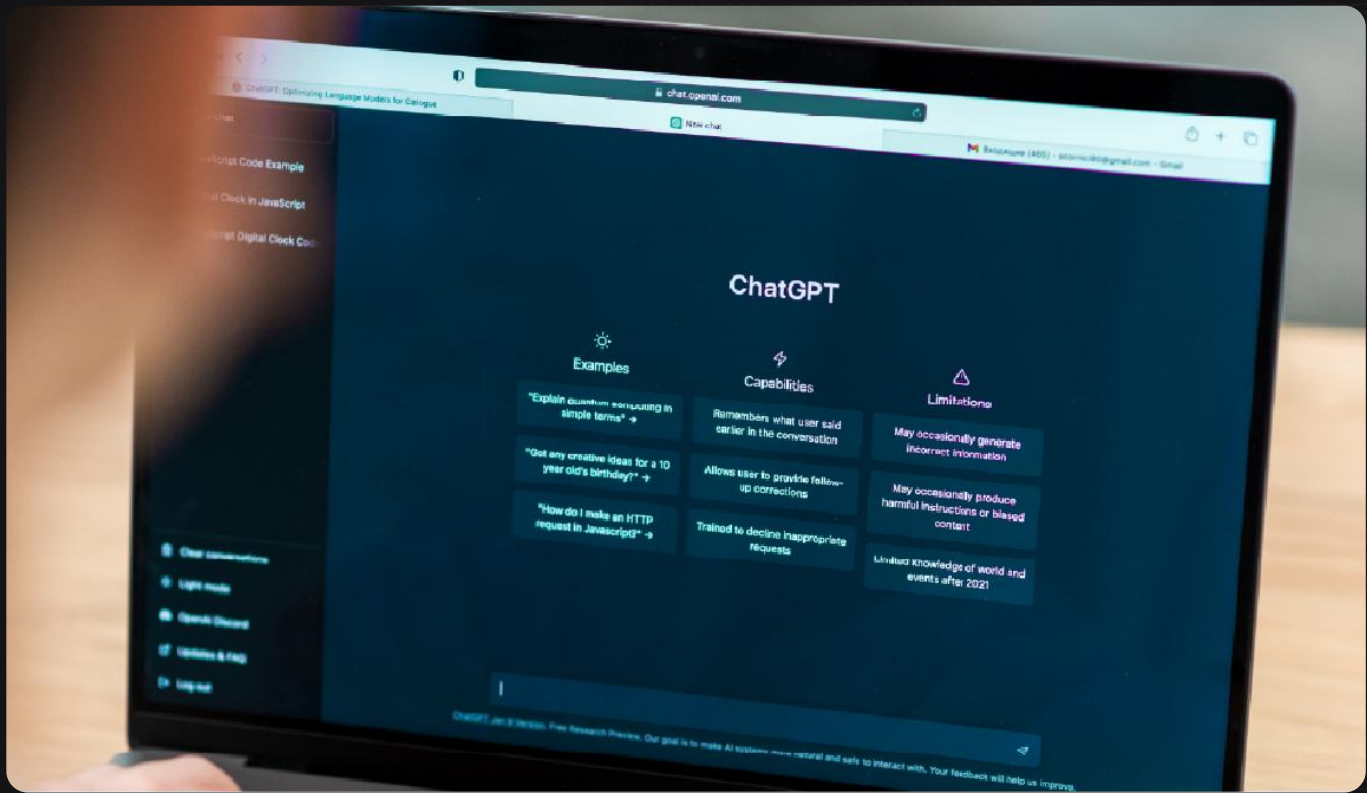
Projects on Large Language Models

Train your own LLMs from Scratch like GPT-3.5



- Implement script for training and evaluating Large Language Models (LLMs) from scratch, such as GPT-3.5.
- Employ best practices for training LLMs, including infrastructure setup.
- Implement parallel and distributed computing strategies, including 3D parallelism and similar approaches.

Develop your own ChatGPT from scratch



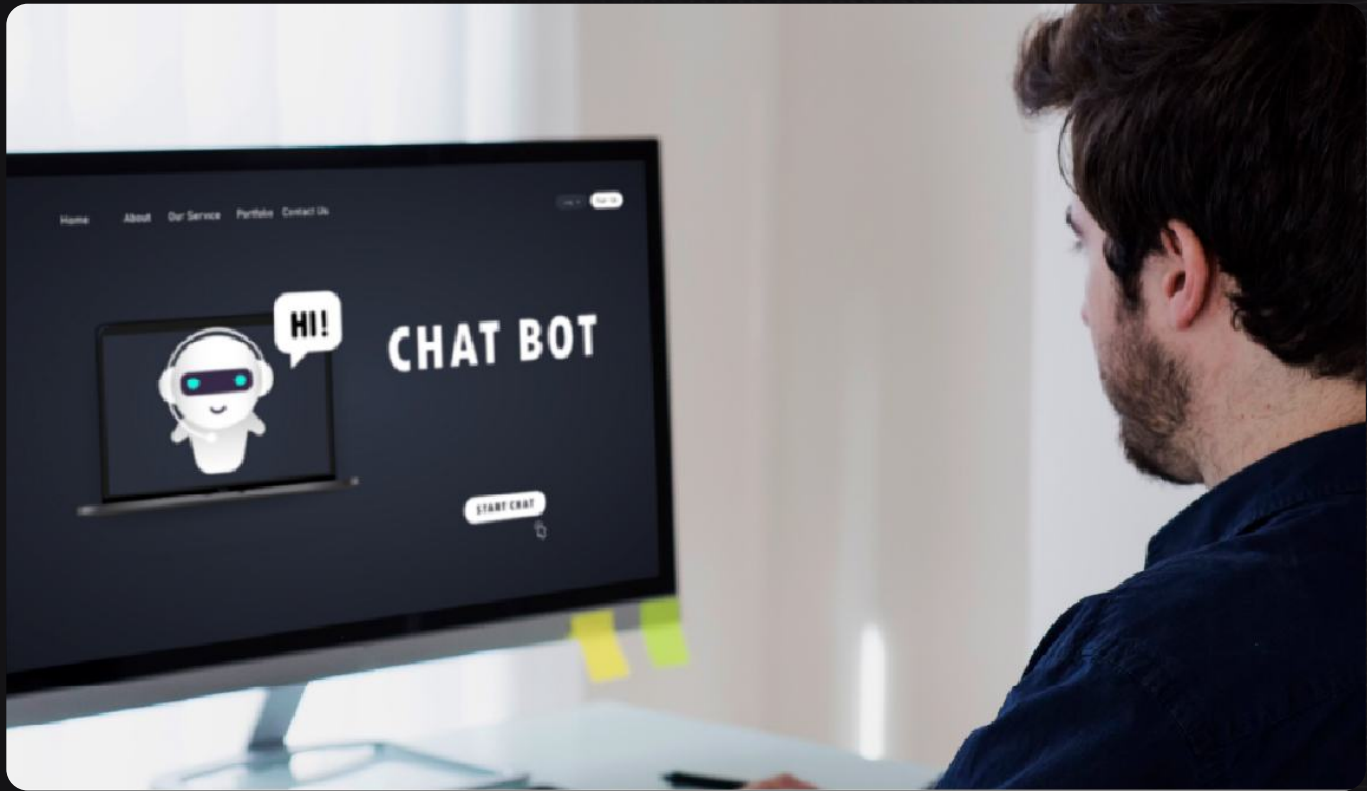
- Implement all stages in the development of a Large Language Model (LLM) similar to ChatGPT, including:
 - Pretraining
 - Supervised Finetuning
 - Reinforcement Learning from Human Feedback (RLHF)
- Learn and apply the best industry practices for creating a dialogue-optimized LLM like ChatGPT.

Develop your own LLM Application using Prompt Engineering



- Master prompt engineering, including its various techniques and methods.
- Build a Large Language Model (LLM) application, such as a chatbot, using private data and leveraging both ChatGPT API and open-source LLMs.

Create a production-ready X on your private data



- Use LlamaIndex to build a production-ready Retrieval-Augmented Generation (RAG) system on your private data.
- Acquire hands-on experience with advanced components of LlamaIndex, including:
 - Agents
 - Router Query Engine, SubQuestionQuery Engine
 - Open AI Assistants
 - Finetuning with Retrieval Augmentation (RADIT)
 - Finetuning Embeddings

Building End-to-End RAG Apps



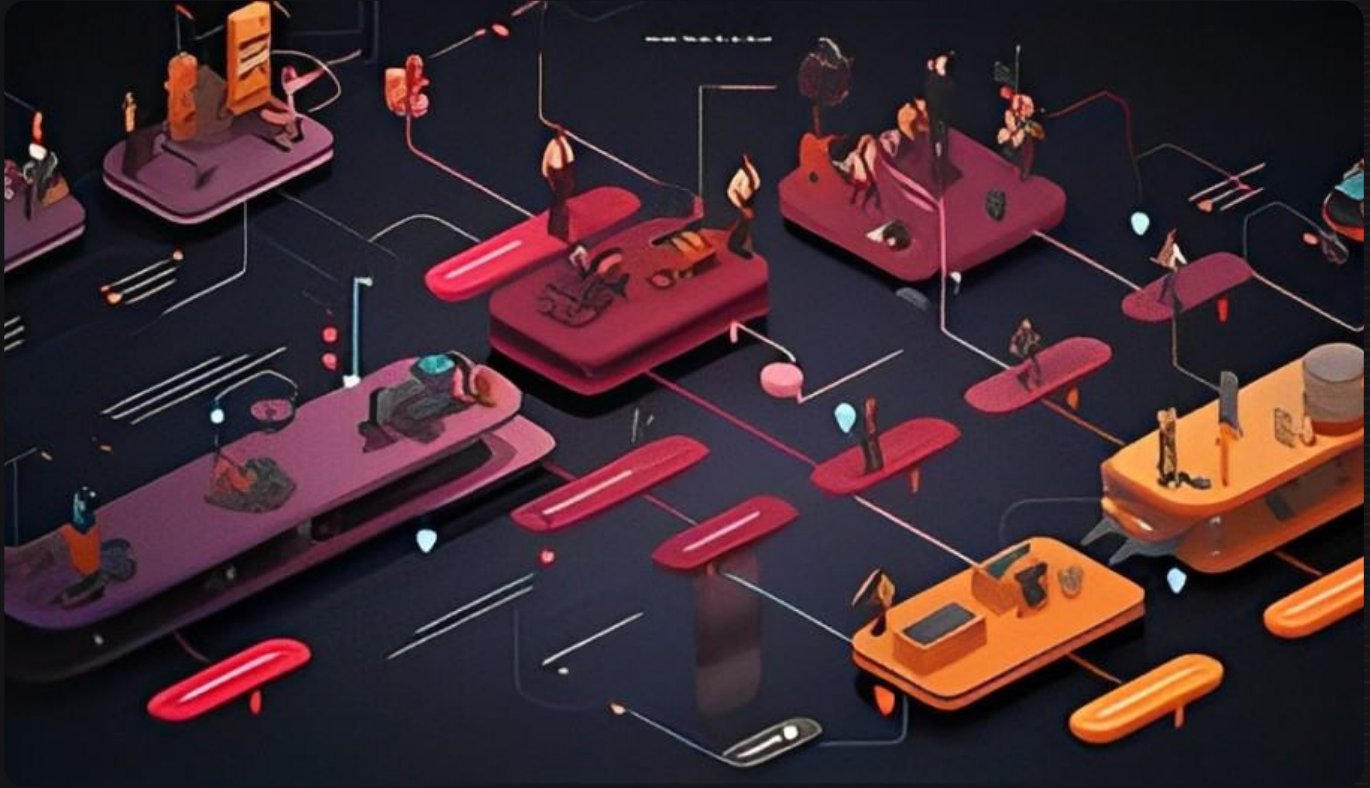
- Design and develop a RAG-based QA chatbot with a user-friendly interface.
- Build a full-stack application using LangChain and Streamlit, ensuring seamless data flow between the frontend and backend.
- Master the deployment of RAG applications for real-world usage.

Build Conversational Apps and Agents



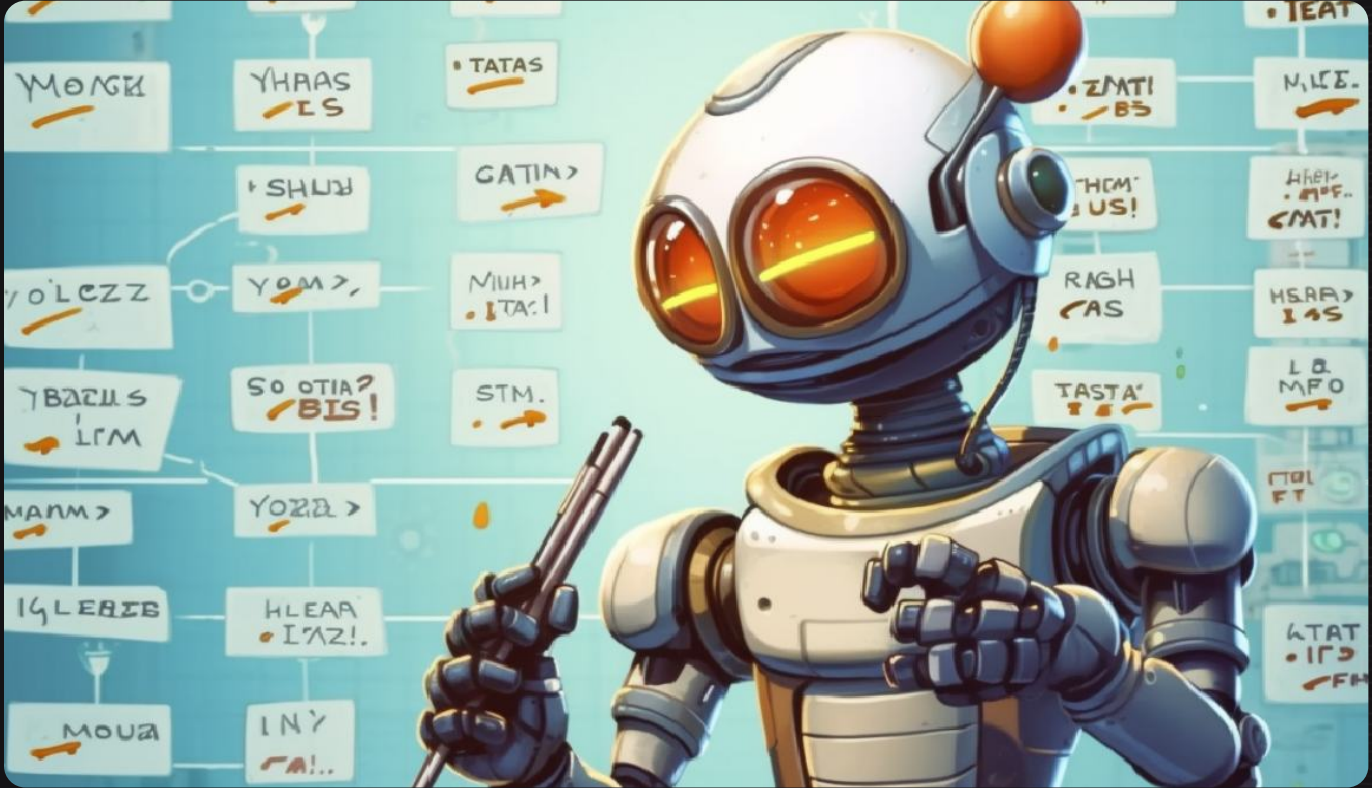
- Construct engaging conversational bots using LLMs like ChatGPT, tailoring them for specific use cases.
- Develop sophisticated AI tools and agents by integrating LLMs with LangChain's flexible capabilities.
- Design applications for LLM management and interaction within LangChain environments.

Advanced RAG System Development



- Implement reranking techniques to significantly enhance search accuracy and relevance within RAG systems.
- Apply cutting-edge RAG methods from recent research, optimizing performance for specific domains.
- Adapt RAG systems to handle diverse data types (text, tables, images, etc.) broadening their applicability.

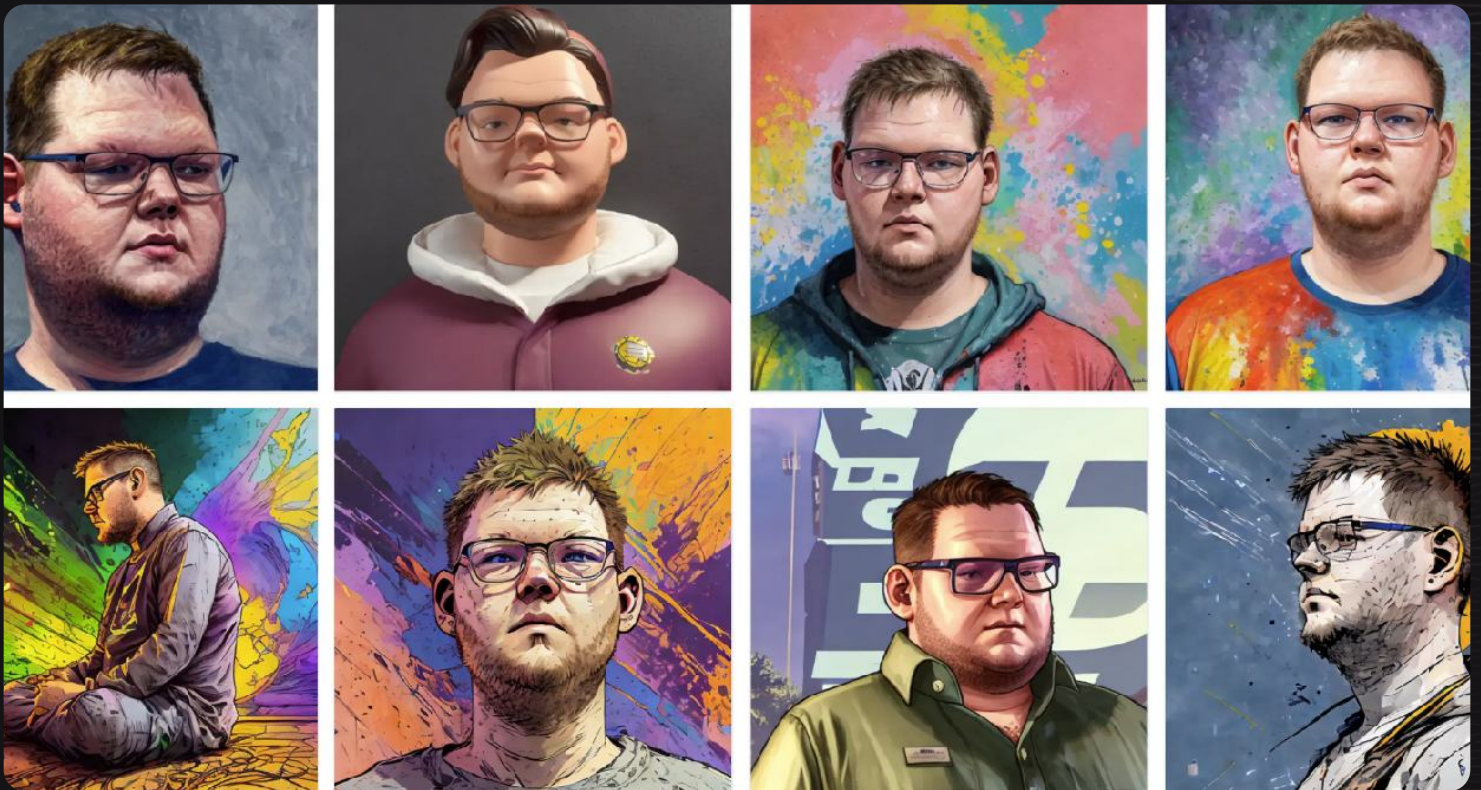
Finetuning LLMs using Soft Prompting, Adaptor techniques using PEFT



- Use PEFT (Progressive Layer Dropping-based Efficient Finetuning) for accelerated model finetuning on a single GPU.
- Finetune Large Language Models (LLMs) for specific downstream use cases using techniques like LoRA, QLoRA, and soft prompting.
- Build an Instruction Following Large Language Model using PEFT.

Projects on Stable Diffusion Models

Finetune your own Stable Diffusion models on custom dataset



- Gain proficiency in the development and fine-tuning of Stable Diffusion models, understanding its intricacies and applications.
- Implement industrial practices for the creation and customization of Stable Diffusion models specific to your dataset.

Build your own personalized Text to Image models using DreamBooth



- Develop the skill to build personalized Text to Image models using DreamBooth, mastering the conversion of textual descriptions into distinct and tailored visual representations.
- Implement DreamBooth on your own image dataset, enabling the creation of highly personalized and context-specific text-to-image models that reflect the nuances of your provided data.

Finetune Diffusion models using ControlNets and Instruct Pix2Pix models



- Engage in hands-on fine-tuning of diffusion models, particularly employing ControlNets and InstructPix2Pix models for improved performance and adaptability.
- Integrate and optimize the use of ControlNets and InstructPix2Pix models within the stable diffusion model framework, perfecting the skill of refining and customizing these models for specific tasks and datasets.

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