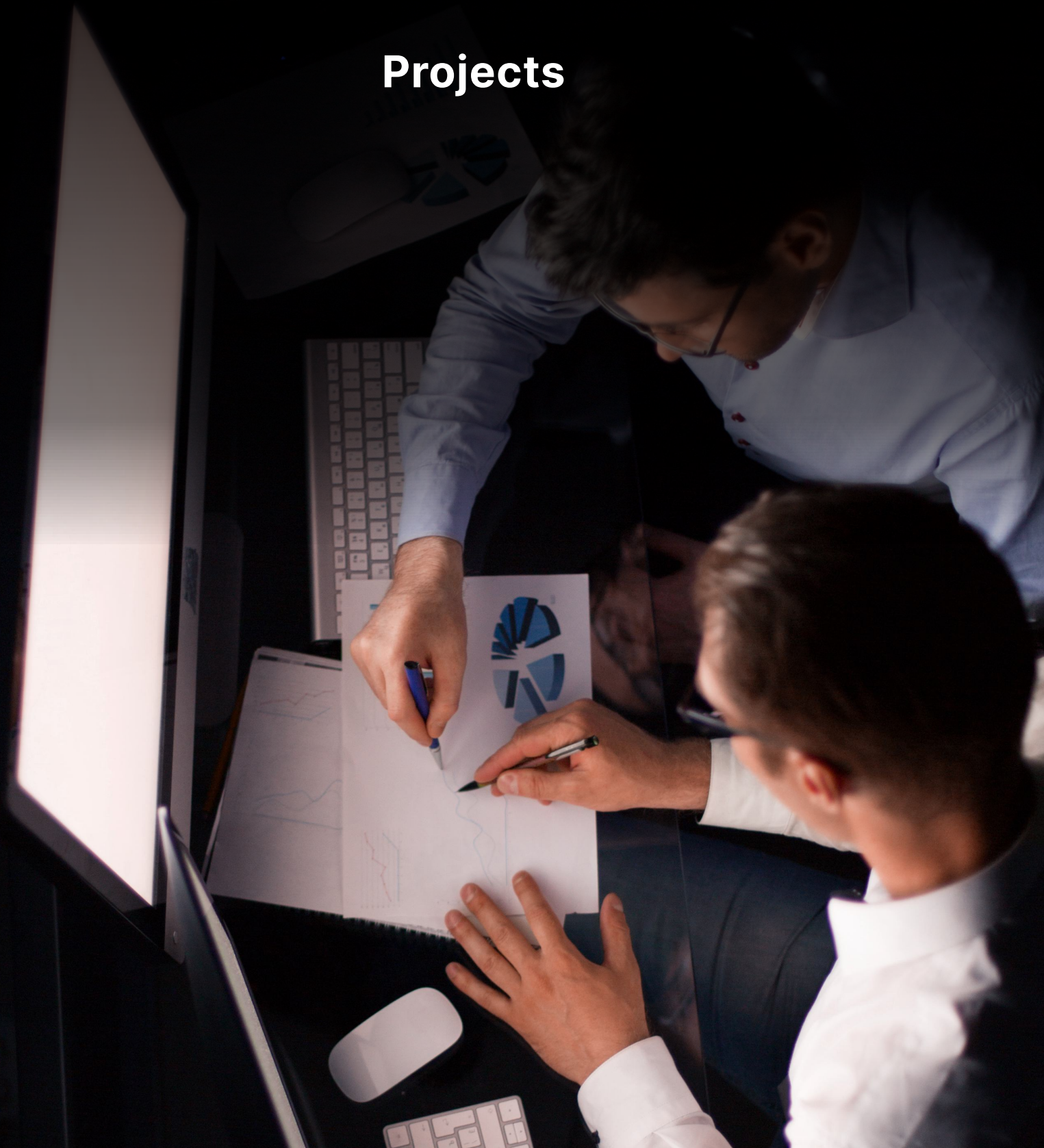




GenAI Pinnacle Program

Revolutionizing AI Learning & Development

Projects

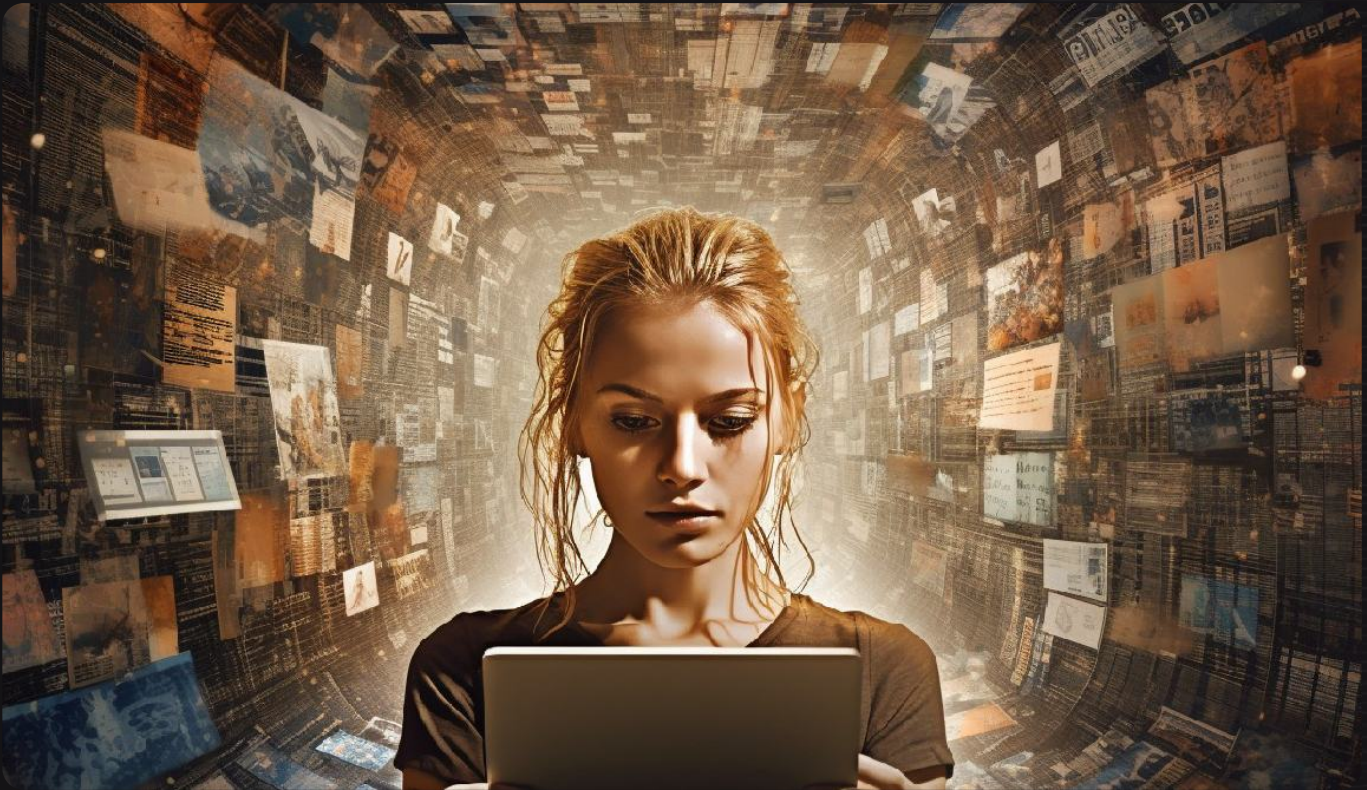


Projects Introduction

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.

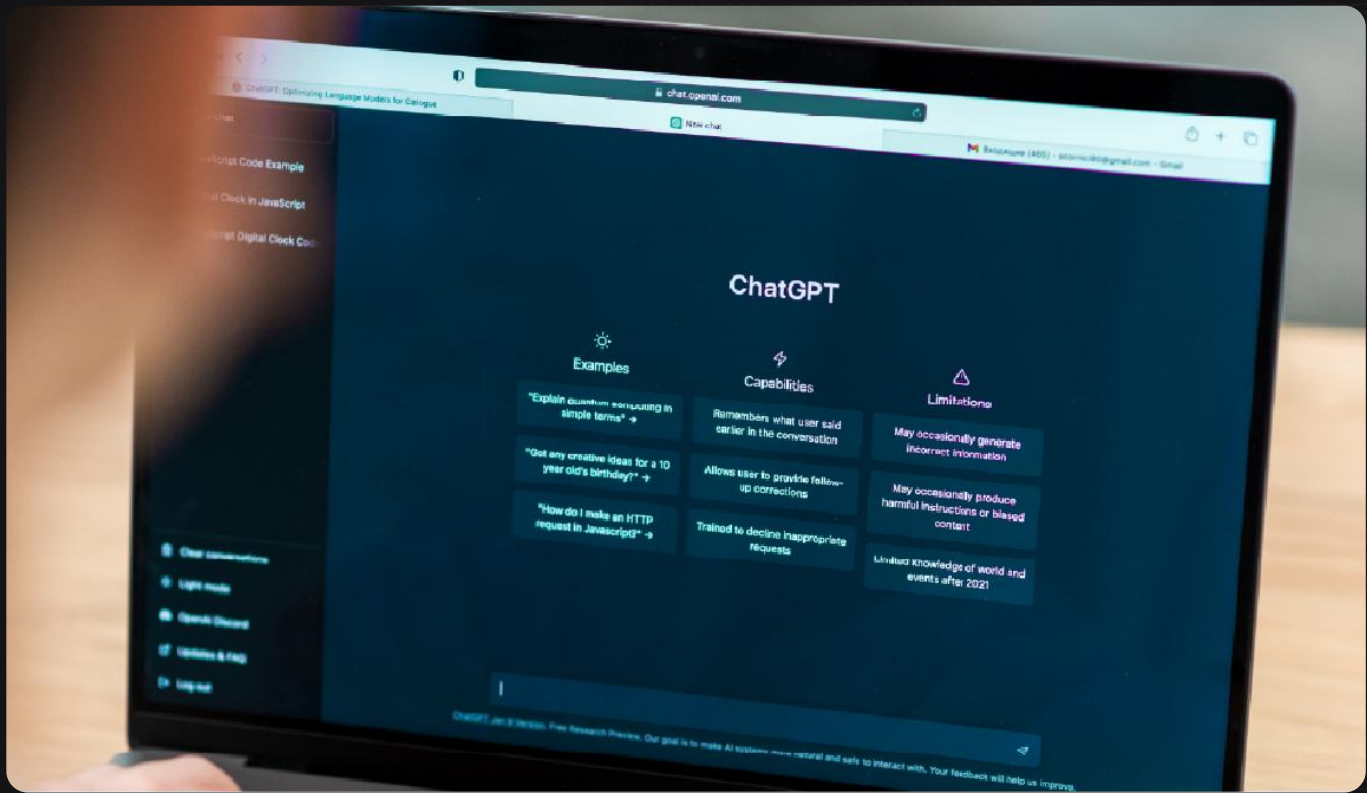
Projects on Large Language Models

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



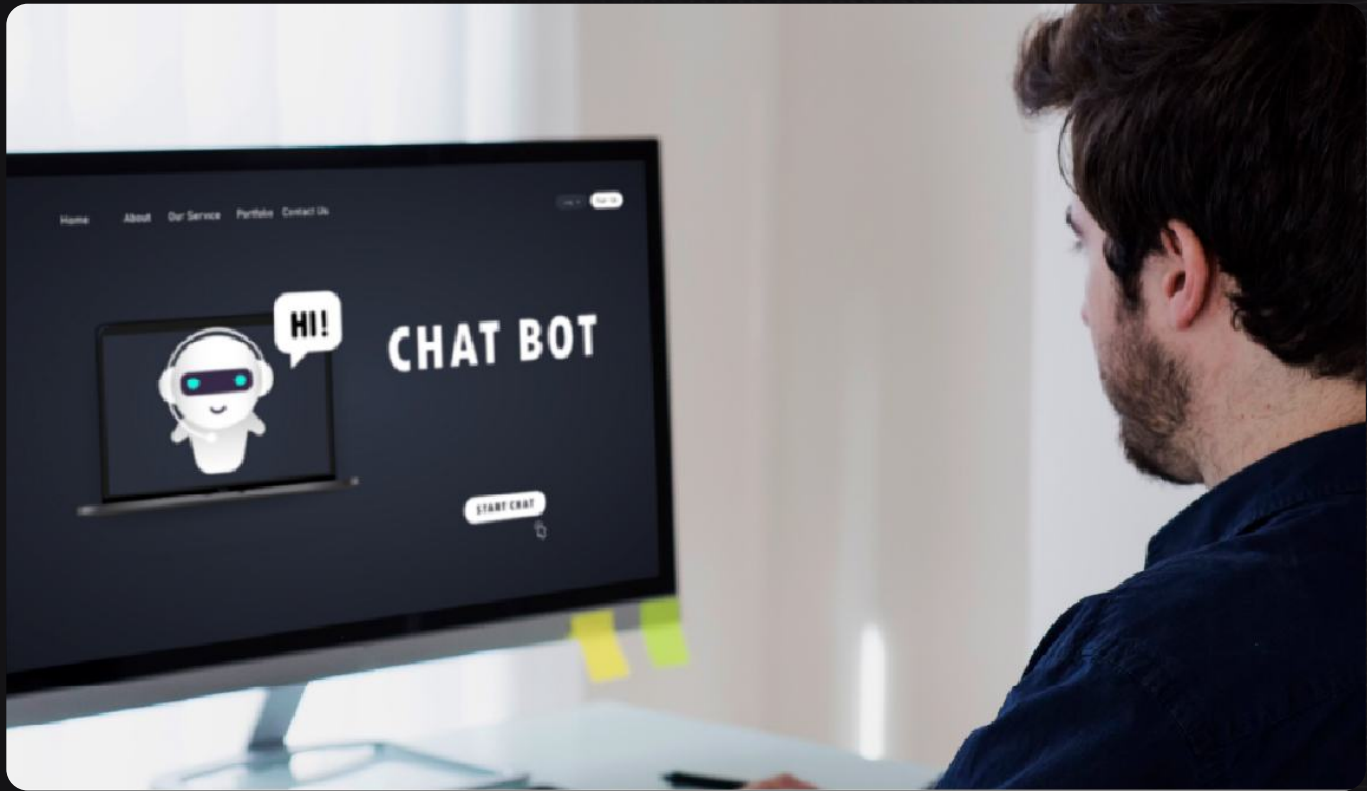
- Implement all stages in the development of a Large Language Model (LLM) similar to ChatGPT, including:
 - Pretraining
 - Supervised Finetuning
 - Reinforcement Learning from Human Feedback (RLHF)
- Learn and apply the best industry practices for creating a dialogue-optimized LLM like ChatGPT.

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



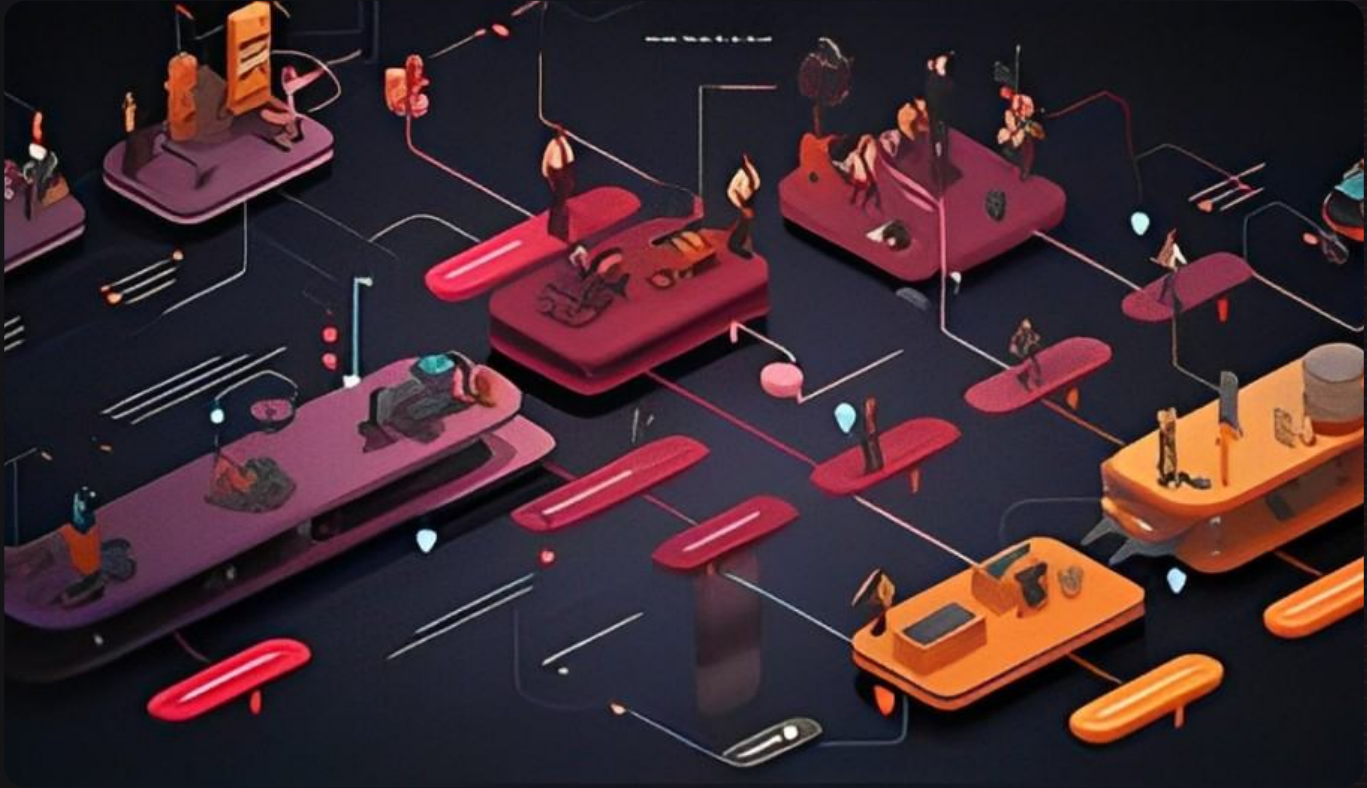
- Design and develop a RAG-based QA chatbot with a user-friendly interface.
- Build a full-stack application using LangChain and Streamlit, ensuring seamless data flow between the frontend and backend.
- Master the deployment of RAG applications for real-world usage.

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.

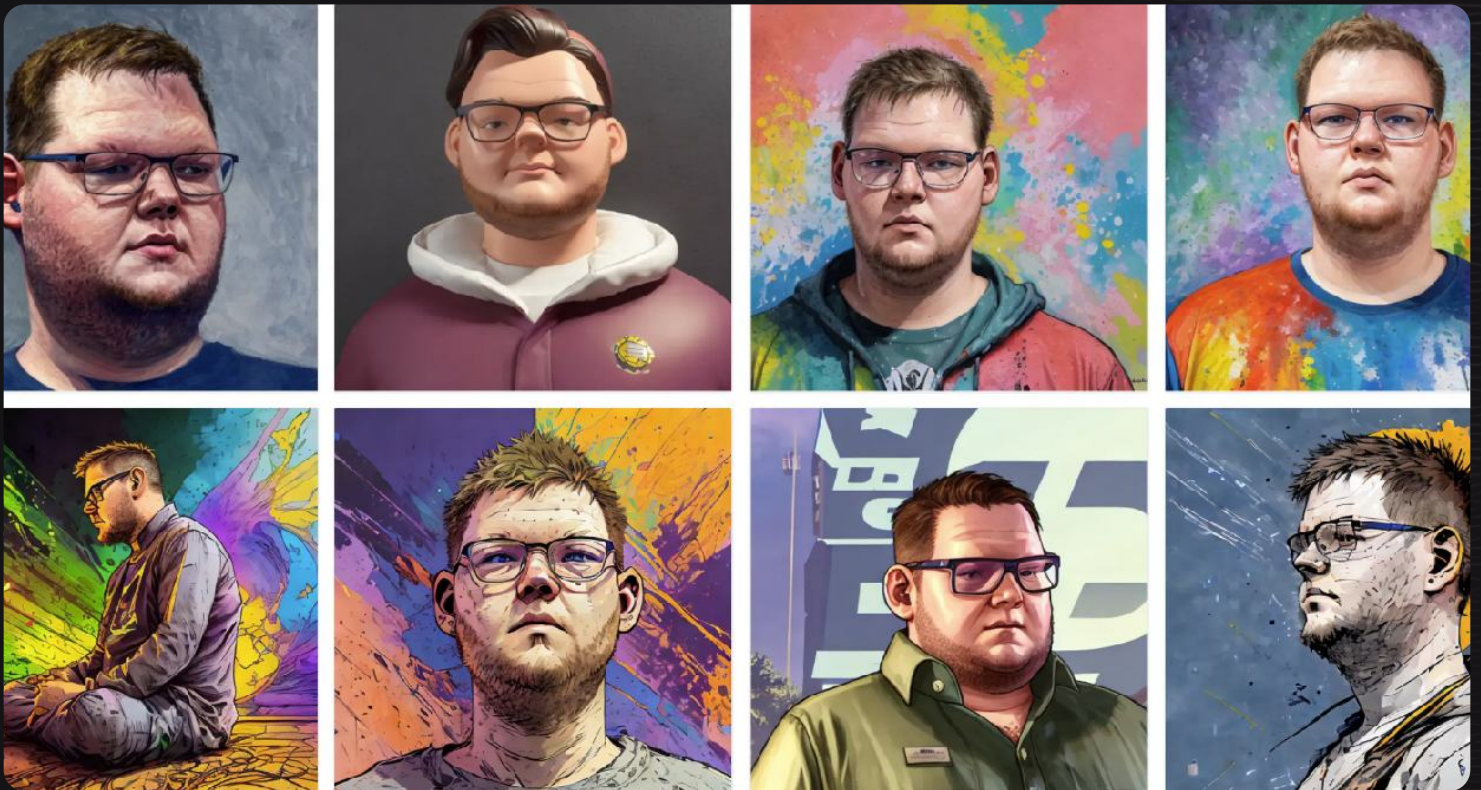
Finetuning LLMs using Soft Prompting, Adaptor techniques using PEFT



- 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.

Shaping Tomorrow with Generative AI

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