

# GenAI Pinnacle Program Projects

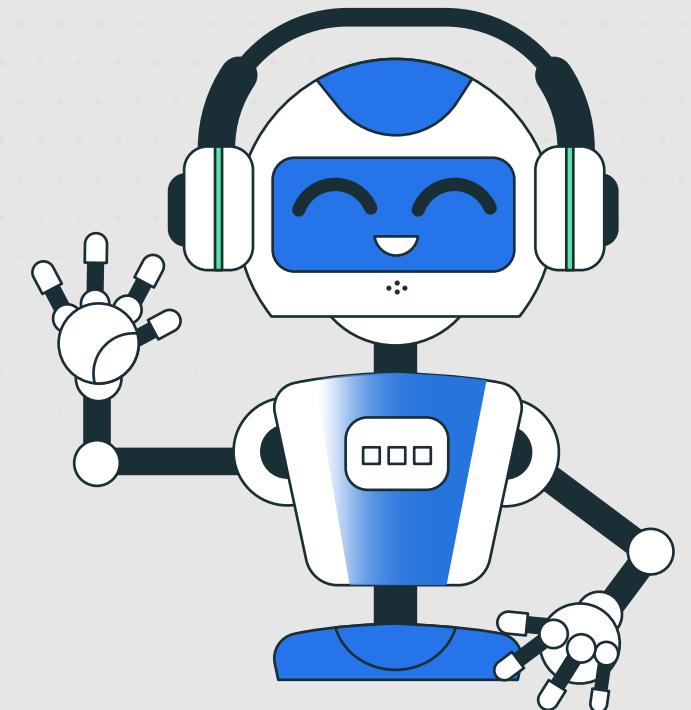


# Projects on Large Language Models



## Train your own LLMs from Scratch like GPT-3.5

- Implement script to train and evaluate LLMs from scratch like GPT-3.5
- Implement the best practices to train LLMs along with setting up the infrastructure.
- Implement parallel and distributed computing strategies like 3D parallelism and so on.



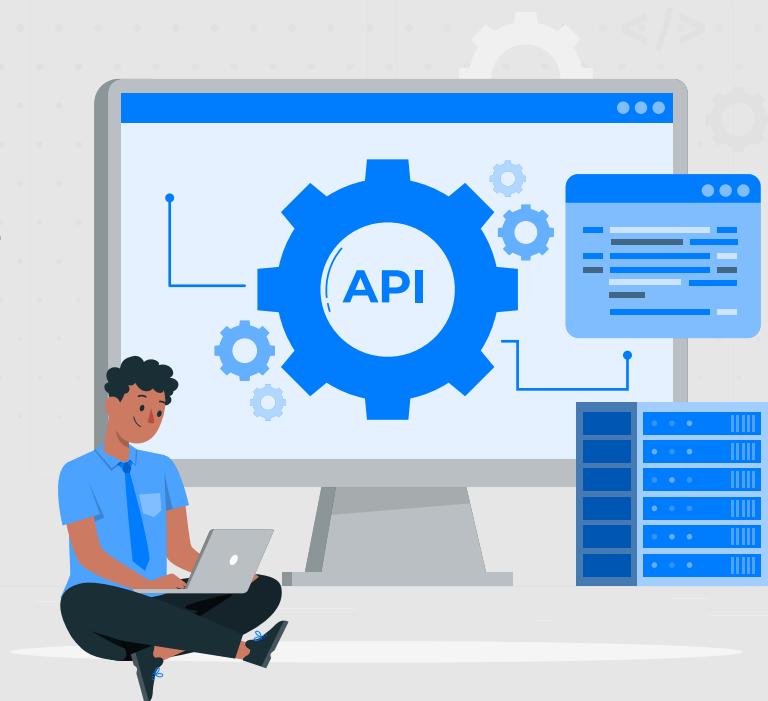
# Develop your own ChatGPT from scratch

- Implement all the steps involved in building LLM similar to ChatGPT:
  - Pretraining
  - Supervised Finetuning
  - Reinforcement Learning from Human Feedback (RLHF)
- Learn and implement the best industry practices to build a dialogue optimized LLM like ChatGPT.



# Develop your own LLM Application using Prompt Engineering

- Master the art of prompt engineering and its different techniques and methods.
- Build a LLM application like chatbot on your private data using both ChatGPT API and open source LLMs as well.



## Create a production ready X on your private data

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



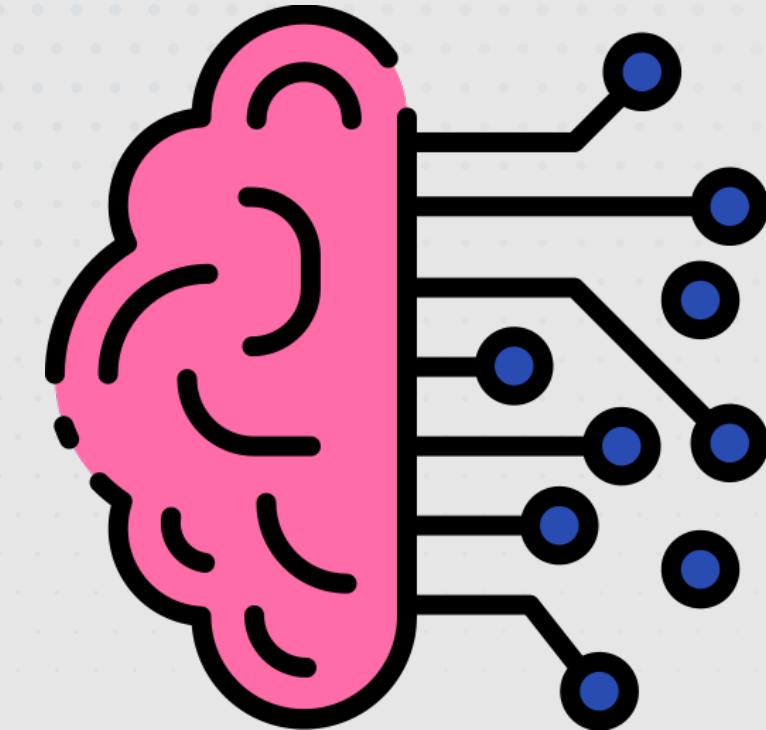
## Finetuning LLMs using Soft Prompting, Adaptor techniques using PEFT

- Use PEFT to accelerate the model finetuning on a single GPU.
- Finetune LLMs on your downstream use cases using LoRA, QLoRA and soft prompting
- Build Instruction Following LLM using PEFT.



**PEFT**

# Projects on **Stable Diffusion**



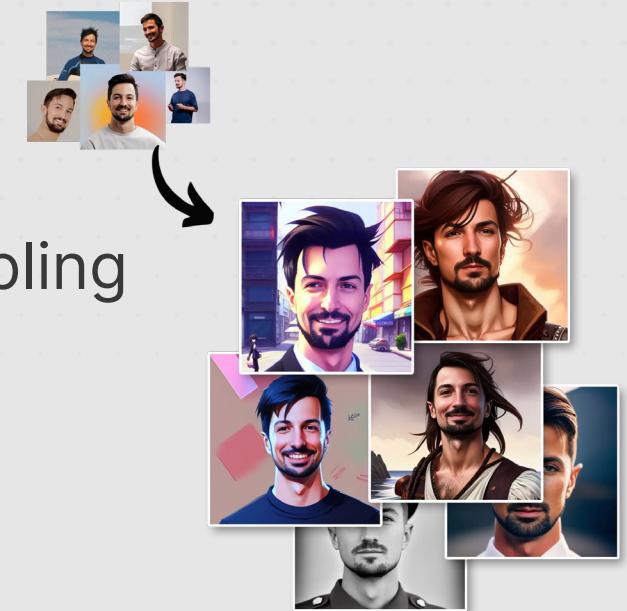
## Finetune your own Stable Diffusion models on custom dataset

- Gain proficiency in the development and fine-tuning of Stable Diffusion models, understanding their intricacies and applications.
- Apply industrial practices in the creation and customization of stable diffusion models tailored to your specific dataset.



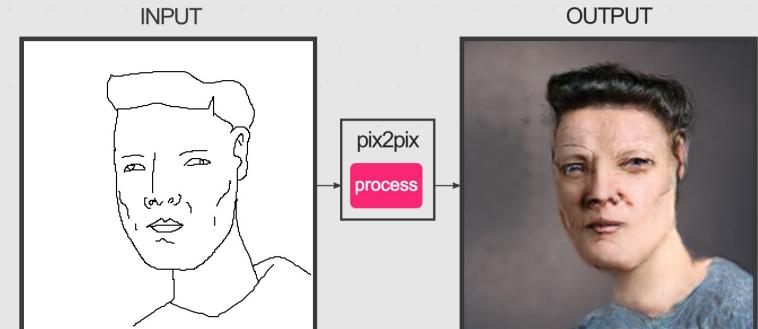
## Build your own personalized Text to Image models using DreamBooth

- Acquire the skill to construct personalized Text to Image models using DreamBooth, honing the ability to translate textual descriptions into unique and customized 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

- Hands-on with fine-tuning of diffusion models, specifically utilizing ControlNets and InstructPix2Pix models to enhance performance and adaptability.
- Integrate and optimize the use of ControlNets and Instruct Pix2Pix models within the stable diffusion model framework, mastering the art of refining and tailoring these models to specific tasks and datasets.



# Thank you



+91-8046107668 | +91-8068342847



pinnacle.analyticsvidhya.com



training\_support@analyticsvidhya.com



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