Guru Nanak Dev Engineering College

Training Diary – TR-102 Report

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Training Summary

Model	Company	Specialty	Type of Content	Version
ChatGPT	OpenAI	Conversational AI	Text	GPT-4
DeepSeek	DeepSeek	Advanced reasoning	Text	DeepSeek-V2
Grok	xAI (by Elon Musk)	Fast, real-time answers	Text	Grok-1.5
Gemini	Google	Multimodal AI	Text, Images, Audio	Gemini 1.5
DALL·E	OpenAI	Image generation	Images	DALL·E 3
Copilot	Microsoft x OpenAI	Code assistant	Code	Copilot+ (GPT-4/Codex)
Claude	Anthropic	Helpful, safe assistant	Text	Claude 3
LLaMA	Meta	Open-source LLM	Text	LLaMA 3
Whisper	OpenAI	Speech recognition	Audio	Whisper v2
Google Speech	Google	Voice-to-text	Audio	Speech-to-Text API
Codex	OpenAI	Code generation	Code	Codex (GPT-3)

Introduction to Large Language Models (LLMs)

LLMs are powerful AI models trained to understand and generate language. They follow a structure: Prompt → Model → Generated Output.

Key Terms

- Token: Units of text used by models
- Parameters: Model's learnable weights
- Prompt: Instruction given to AI
- Fine-tuning: Tailoring a model to specific tasks
- Inference: Generating output from a trained model
- Transformer: The base architecture of most LLMs

Training a LLM Involves

1. Pretraining – Learning from large datasets
2. Fine-tuning – Adjusting the model for specific tasks
3. RLHF – Improving output with human feedback

Applications of LLMs

- Chatbots
- Text summarization
- Code generation
- Education
- Translation
- Content creation

Limitations of LLMs

- Hallucinations
- Bias
- No real understanding
- Context limits
- Ethical issues
- Data privacy risks

Responsibility & Future of LLMs

LLMs must be used ethically. Future improvements include more accuracy, safety, and application in healthcare, education, and automation.