Title

- Internship Presentation
- AI/ML Engineering — Learning Summary
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Python Foundations

- Python basics: syntax, loops, functions, OOP
- File handling, error handling
- numpy, pandas, matplotlib
- Mini projects: calculator, CSV analysis

Expense Tracker (CLI App)

- CSV/SQLite storage
- Add / view / filter expenses
- Monthly totals + export
- Charts with matplotlib

NLP Fundamentals

- Tokenization, stopwords, stemming, lemmatization
- BoW, TF-IDF, n-grams
- Word2Vec, GloVe, FastText
- Semantic similarity

Sequence Models & Attention

- RNN $\rightarrow$ LSTM $\rightarrow$ GRU
- Seq2Seq with attention
- Sentiment classifier

Transformers & Tokenization

- Self-attention, encoder/decoder
- Tokenizers: BPE, WordPiece
- BERT classification

Advanced NLP & Evaluation

- MLM vs CLM
- Fine-tuning BERT/GPT
- Accuracy, F1, BLEU, ROUGE
- RAG basics

Brick Breaker (Pygame)

- Ball physics, collisions, scoring
- Lives system + game loop

- Optional power-ups

LLM Concepts

- Tokenization → embeddings → attention
- Transformer stack
- Training + inference pipeline

Open Source LLMs

- LLaMA, Mistral, Phi-3, Gemma
- Ollama, HF, GGUF/GPTQ
- Performance comparison

Prompt Engineering & Chatbots

- Zero-shot / few-shot / CoT
- LangChain chatbot
- FastAPI backend

Fine-Tuning & PEFT

- LoRA, QLoRA
- Dataset cleaning & tokenizer
- Fine-tuned small models

RAG Systems

- Chunking, embeddings, vector DBs
- Chroma + SentenceTransformers
- PDF knowledge base bot

Multimodal Work

- BLIP, CLIP, LLaVA
- Whisper STT + TTS

Conclusion

- End-to-end ML + NLP + LLM exposure
- Practical project experience
- Ready for AI/ML engineer role