Spending somewhere around 6-8 hours studying LLMs individually will have exponential returns before we try diving into this project. LLMs are the foundation of what our project is, and without a super strong foundation, our house will probably just keep collapsing. This is a large time commitment with no 'tangible' results, but it will definitely be worth it:

THE ULTIMATE LLM RESOURCE: 3Blue1Brown's Neural Networks Playlist: **2.5 Hours Total**

- This playlist is 7 Parts long (with 2 optional videos) - I *really* recommend watching them all in order
- Although only parts 5-7 Deal with LLMs, parts 1-4 set up the background information and intuition behind neural networks in general and how data might be 'learned'.
- Honestly, this series *IS* enough to get a satisfactory understanding of what's going on. I went through it slowly, took notes, and quizzed myself over the course of a weekend and I was able to retain a lot. The key is just going super slow, rewatching stuff, and googling questions which come up along the way.

LESS TECHNICAL, ALSO AMAZING: Andrew Karpathy Intro to LLMS: **1 Hour Total**

- This is a great video and is less technical than the playlist above, gives great intuition as to what an LLM is and how it can be used for a variety of different tasks. Also a brief history on them, their shortcomings, etc.
- Video creator Andrej Karpathy is a legend and has a ton of other great content to check out

BUILDING AN LLM FROM SCRATCH: Building GPT From Scratch: **2 Hours Total**

- Another great Andrej Karpathy video, he builds an LLM using only PyTorch, in under 2 hours. Pretty bananas.
- Builds it based directly off of the 'Attention is All You Need' paper, the research paper which created the modern, super powerful LLM architecture

RAG VIDEO: What is Rag?: **20 Mins Total**

- Honestly this is pretty much all you need to understand Retrieval Augmented Generation (RAG). Implementing RAG is challenging, but the concept itself is pretty simple.
- This video shows the need for RAG, as well as a basic implementation.
- This guy Shaw Talebi has a lot of other good content, too.

VECTOR STORES: Link Here: **3 Mins Total**

- We did not watch this in the meeting, but it's a good one.

Public Repo Of RAG Chatbot with LangChain and OpenAI Usage: Github Repo Here

- This is a public github repo of someone else who implemented a RAG chatbot in which PDFs can be uploaded, put into a vector store, and referenced in the chatbot's answers.
- Just one of many ways to implement it, but checking out this repo could give us an idea of how we want to implement our own chatbot!