

# Models Mafia Jan 29th Meeting

Goal: Building a Small Language Model using Transformers on a small corpus of text data

## Key Points:

1. Our aim is to create a language model *together*. This means we will have to level the platform for everyone on the mathematics, programming and engineering side to realize the goal. Our goal is defined but the path towards that goal will be created by us together. The end goal is to build a foundational model in India.
2. Raushan is willing to instruct on the basic mathematics (Linear Algebra, Calculus and Probability) to understand the intuition behind the Deep Learning models. We will start from creating a Perceptron model with backpropagation which requires calculating gradients, then an Artificial Neural Network for classifying digits (MNIST dataset), then a Convolutional Neural Network for classifying images, and then a Recurrent Neural Network for classifying text data. These are the basics. Advanced models to go from here are diffusion and transformers based models in the realm of Generative AI.
3. PS is personally starting with a small dataset having the wikipedia articles to create a language model from scratch to understand how everything works. He suggests that any small dataset containing text will work for starters.
4. Our current way to learn is by programming the equations using math libraries in Python. We are going to program everything from scratch to understand the underlying intuition of the basic Deep Learning models and then scale to the advanced models.
5. Some in the community are lacking on one of the requirements. Hence the other members are willing to help them to be on the same platform.
6. Atal is bullish that once this takes off it can be turned into a social media initiative.
7. The only payment is commitment and dedication.

## Resources:

### Textbooks -

1. [Dive into Deep Learning \(D2L\)](#)
2. [Deep Learning](#)
3. [Build a Large Language Model from scratch](#)

### GitHub Repositories -

1. <https://github.com/thepopeye/bumblebee>
2. <https://github.com/rasbt/LLMs-from-scratch>

### Programming Tools -

1. Jupyter Notebook
2. Lightning Studio
3. Python programming language
4. PyTorch
5. NumPy