046211 - Deep Learning - Project Proposal

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Project Name: Transformer-Based Phishing Email Classifier

Short Description/Plan:

We're planning to build a classifier to detect phishing emails using the attention transformer architecture. This classifier will analyze not just the email content but also other important features like the sender address, time and date of sending, and subject line.

We intend to use a dataset of emails labeled as "phishing," "spam," and "legitimate."

One possible data set: Phishing Email Dataset (kaggle.com)

Our first step will be to implement a transformer model for numerical inputs. Then, we'll work on an encoder-decoder setup to embed and process the email text.

Since we haven't implemented a transformer before, we expect this to be a bit challenging. But we're ready to tackle it with thorough research and experimentation.

Available Resources:

Papers:

1. **Attention Is All You Need** by Vaswani et al. Link
2. **BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding** by Devlin et al. Link
3. **XLNet: Generalized Autoregressive Pretraining for Language Understanding** by Yang et al. Link

Available Code Base:

1. **Transformers by Hugging Face** GitHub Link
2. **BERT** GitHub Link
3. **XLNet** GitHub Link

Does your project build upon previous projects? No