A Generalized Web-Based Application for Neural Network Visualization

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1. Objective

- Develop a web-based tool that will allow users to visualize neural networks
- Generalized to allow models from frameworks like TensorFlow, Keras, and PyTorch

2. Background

Existing Tools:

- TensorBoard
- Netron
- ENNUI

These tools lack support for multiple frameworks, different types of networks, and animation capabilities.

3. Primary Goals

- Visualize networks from TensorFlow, Keras, and PyTorch models
- Visualize simple feed-forward and convolutional neural networks
- Visualize the overall structure, plus details like weights and biases

4. Stretch Goals

- Animations of the network's training
- Inputs to generate custom networks and code for them
- Export visualizations and animations to tikz graphs for LaTeX
- Support for recurrent neural networks
- Support for ML.NET and scikit-learn models

5. Challenges

- Model parser complexity
- Graph generation and visualization complexity
- Complex network types (convolutional, etc.) are needed to be competitive
- Code export requires a deep understanding of the framework APIs
- Animations are challenging, especially when generating programmatically

Thank you

Questions