Miniconda & PyTorch Setup for GPT-2 Prototype

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May 8, 2025

Abstract

Step-by-step installation of Miniconda, creation of a dedicated Conda environment, installation of CPU-only PyTorch, and verification. All file-names and variables with underscores or "$" are now properly escaped.

1 Install Miniconda

1.1 Download the Installer

```
curl -O \
  https://repo.anaconda.com/miniconda/Miniconda3-latest-Linux-x86_64.sh
```

Explanation:

- `curl -O` downloads the remote file as `Miniconda3-latest-Linux-x86_64.sh`.

1.2 Make the Script Executable

```
chmod +x Miniconda3-latest-Linux-x86_64.sh
```

Explanation:

- Grants "execute" permission so you can run the installer.

1.3 Run the Installer

```
bash Miniconda3-latest-Linux-x86_64.sh \
  -b -p \$HOME/miniconda
```

Explanation:

- `-b` runs in batch mode (no prompts).
- `-p $HOME/miniconda` installs into `$HOME/miniconda`.

1.4 Initialize Conda in Your Shell

```
eval "\$(\$HOME/miniconda/bin/conda shell.bash hook)"
```

Explanation:

- Configures your current Bash session so the `conda` command works immediately.

2 Create Conda Environment & Install PyTorch

2.1 Create a Dedicated Environment

```
conda create -y -n gpt2-proto python=3.9
```

Explanation:

- `-n gpt2-proto` names the environment "gpt2-proto."
- `python=3.9` pins Python 3.9 in this env.

2.2 Activate the Environment

```
conda activate gpt2-proto
```

Explanation:

- Switches your shell into the new "gpt2-proto" environment.

2.3 Install PyTorch (CPU-only)

```
conda install -y pytorch torchvision cpuonly -c pytorch
```

Explanation:

- Installs `pytorch` and `torchvision` without any CUDA (GPU) dependencies, from the `pytorch` channel.

2.4 Verify the Installation

```
python - << 'EOF'
import torch
print("PyTorch version:", torch.__version__)
x = torch.randn(2,3)
print("Test tensor:", x)
EOF
```

Explanation:

- Runs a quick Python snippet to ensure `torch` imports correctly and can create a tensor.

With Miniconda and CPU PyTorch set up, you're ready to implement your 3-layer Transformer prototype.