Digital Research Alliance of Canada | Alliance de recherche numérique du Canada

Digital Research Alliance of Canada: Project Manuals, Tutorials, and User Guides

Tutorial: Using Digital Alliance Supercomputers for Deep Learning

Objective: Teach researchers how to use Canadian supercomputers to train deep learning models.

Sections:

1. Setting Up Your Digital Alliance Account
2. Introduction to Alliance Clusters (e.g., Narval, Cedar, Niagara)
3. SSH and Secure Access Configuration
4. Preparing Your Python Environment
5. Writing and Submitting SLURM Job Scripts
6. Using GPUs for Deep Learning with PyTorch
7. Monitoring and Debugging Jobs
8. Best Practices for File Management and Backup

```
# Sample SLURM Script
#!/bin/bash
#SBATCH --gpus=1
#SBATCH --cpus-per-task=4
#SBATCH --mem=16G
#SBATCH --time=04:00:00
#SBATCH --job-name=fake-news-train
module load python/3.10
source ~/envs/fakenews/bin/activate
python train_model.py --epochs 10 --batch_size 32
```

Tools:

- `scp` / `rsync` for file transfer
- `seff` for job performance
- `tensorboard` for visualization