*f*AsyLex: Accelerating Legal NLP through Comparative Analysis of Multi-GPU Approaches

Claire Barale
clairebarale.com

November 13, 2023
WHPC Workshop @SC 2023

Key Takeaways

AsyLex: *https://huggingface.co/datasets/clairebarale/AsyLex*

The first dataset specifically designed for Refugee Law applications

Tasks: Information Extraction, Text Classification

59,112 labelled documents on refugee status determination in Canada from 1996 to 2022

01

Training and inference time are a bottleneck in natural language processing research and applications: **large datasets** and **large language models** (LLMs)

02

Downstream tasks and domain-specific applications **require further training** with specific datasets → time and resource-consuming

03

Parallel computing becomes essential for handling the **high computational demands** of language model training

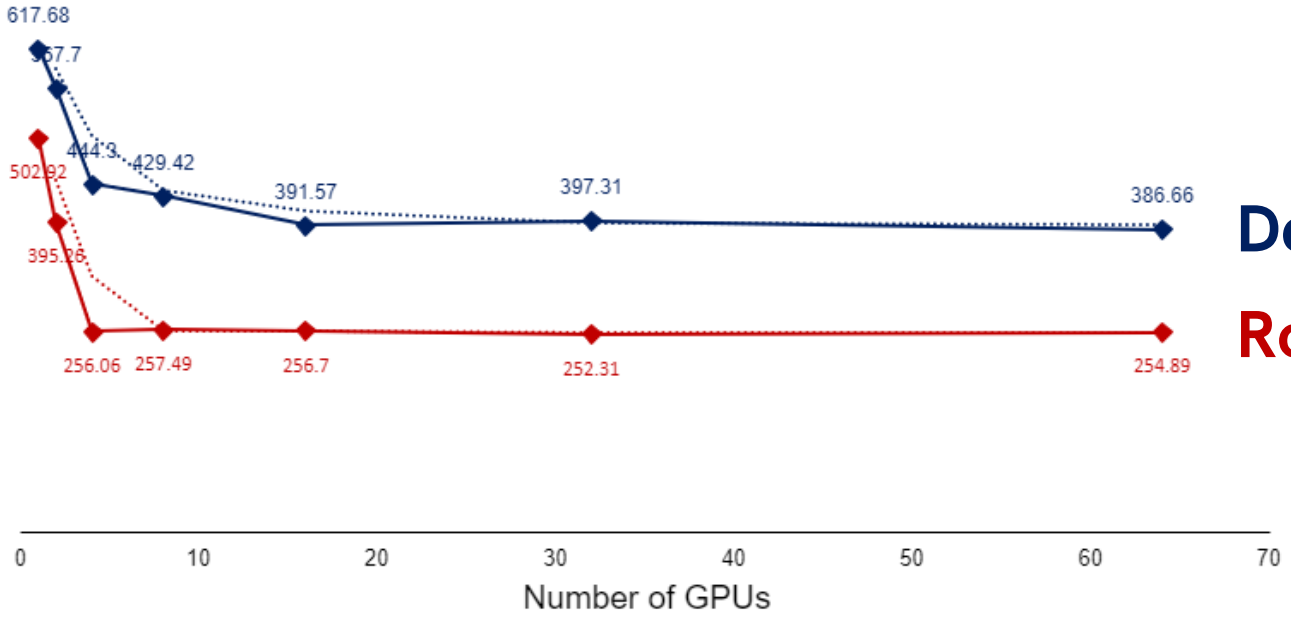
Experimental Setup and Results

THE UNIVERSITY of EDINBURGH informatics

Training Time vs. Number of GPUs

Objective: Evaluate the acceleration of NLP training for the task of text classification

- Using the HuggingFace **Accelerate** library
- Trend: observed plateau



Pretrained Language Model	# Parameters	# Tokens	Corpus size	# Vocab
RoBERTa (Liu et al., 2019)	125 M	2 T	160 GB	50 K
DeBERTa-v3 (He et al., 2023)	86 M	2 T	160 GB	128 K