The Social Costs of AI: Updates

- Aimee Van Wynsberghe

- Tim Mensinger

- Stefan Höse

University of Bonn

Today's agenda

- Current Status

- Results

- Lessons Learned

- Next Steps

Current Status

Project status (last presentation)

- Build test computing infrastructure ✔
  - Setup energy measurement architecture ✔
  - Setup computing environment ✔
  - Run BERT model ⚙
- Build real computing infrastructure ❌
  - Get new computing hardware ❌
- Analyze energy data ❌

Run BERT model

- No proper hardware yet
  - Use existing infrastructure

- No proper software for model training
  - Find software to train BERT base
  - Realize our existing hardware is too old

- Will come back to this task ⚙

Build computing infrastructure

- Buy professional hardware system
  - Delivered: 30. March 2022

- Realize there are problems with the system: 4. April 2022
  - Try to fix them, does not work
  - Contact customer support

- Return device: 1. June 2022

Build computing infrastructure (2)

- Return device: 1. June 2022

- Get repaired device back: 4. July 2022
  - Realize its still broken…
  - Contact customer support again

- Return device: 25. August 2022

- Repaired device arrives: 2. September 2022
  - It kinda works! 🎉

Build computing infrastructure (Back-Up Plan)

- Existing hardware was too old
  - Specifically: GPU was too old

- Replace this component: 17. June 2022
  - Works perfectly!

- Build computing infrastructure ✔

- Run BERT model ✔

Run BERT model training

- Wikipedia
  - ≈ 1 billion words and symbols
  - Training time: 1 day
- BookCorpus
  - ≈ 11,000 books (a human would need to read 10 books per month for 100 years)
  - ≈ 10 billion words and symbols
  - Training time: 10 days

Results

What can our AI model do?

Notebook example

Energy consumption

Insert results figures here

Lessons Learned

- Always have a back-up plan

- Be less patient in B2B contexts

Thank you!

Questions?