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Graphs & LLMs: Synergy

Recent advances

- AAAI submissions (2x)
- NeurIPS rebuttals (3x)
- TPAMI success
- TPAMI submission

KV Caching: System Prompt Compression

- Compress the KV cache of the system prompt
  - System prompt may be huge (10k+ tokens for Claude)
  - This would give many advantages
    - Use heavy slow compression algorithm
    - It could make the pipeline much faster, while also saving lots of space at runtime
  - However: Problematic when adding user parameters, like tools or other dymanic variable, they will change mainly the positional bedding of part of the system prompt

KV Caching: Other Various Attempts

- Attempts at tuning various mechanisms. Passed over.
    - Not enough performance premises
    - Not too novel
- Asynchronous Compression: Compress older input from user at run-time in an asynchronous way.
    - It is similar to how people tend to forget older things in memory
    - Beginning to investigate when Lorenzo is back.

KV Caching: Clarification

- Asking for clarification on why MLA is not too great
  - MLA seems to be faster than other methods.
  - This is highlighted is the fact that with MLA (after certain conditions, i.e., harnessing Experts and Compression) becomes compute bound and not memory bound.
  - Compute power is rising faster than bandwidth and memory capacity - even if it slows down a little but, we should be ok?

- Discussion

High-Performance RLMs

- Sharing weights across rollout, reward, and training stages.
- Distributed weight sharing across different GPUs.
- Implementation efforts.