Improving BAO's worst-case performance

R244 Large-scale data processing and optimisation
Presentation by Martin Graf on 30/11/2022

Quick Recap: Bao

- Bao = Machine Learning + Existing Query Optimiser
- Impressive speed-ups
- Bao comes "batteries included"

learnedsystems / **BaoForPostgreSQL** Public

A prototype implementation of Bao for PostgreSQL

AGPL-3.0, AGPL-3.0 licenses found

96 stars   31 forks

UNIVERSITY OF
CAMBRIDGE

There Is Always a Catch

- Performance of fast queries negatively affected

Contribution: Improving BAO's worst-case performance

- "Disable" Bao where queries are predicted to be fast
- Will not reduce latency through Bao's architecture
- ➔ Will not benefit supercomputers
- **Will** benefit small systems

Deliverables

- Implement "testing" stage to prevent Bao from running when query is predicted to be fast

- Run performance measurements with IMDb workload for default / adopted Bao implementation on a machine with 2 / 4 CPUs where queries are executed sequentially / 4 at a time when using recommended 48 hint sets

References

- Ryan Marcus et al. "Bao: Making learned query optimization practical". In: ACM SIGMOD Record 51.1 (2022), pp. 6–13

UNIVERSITY OF
CAMBRIDGE