

MLCommons Impact on Science Research Education



References

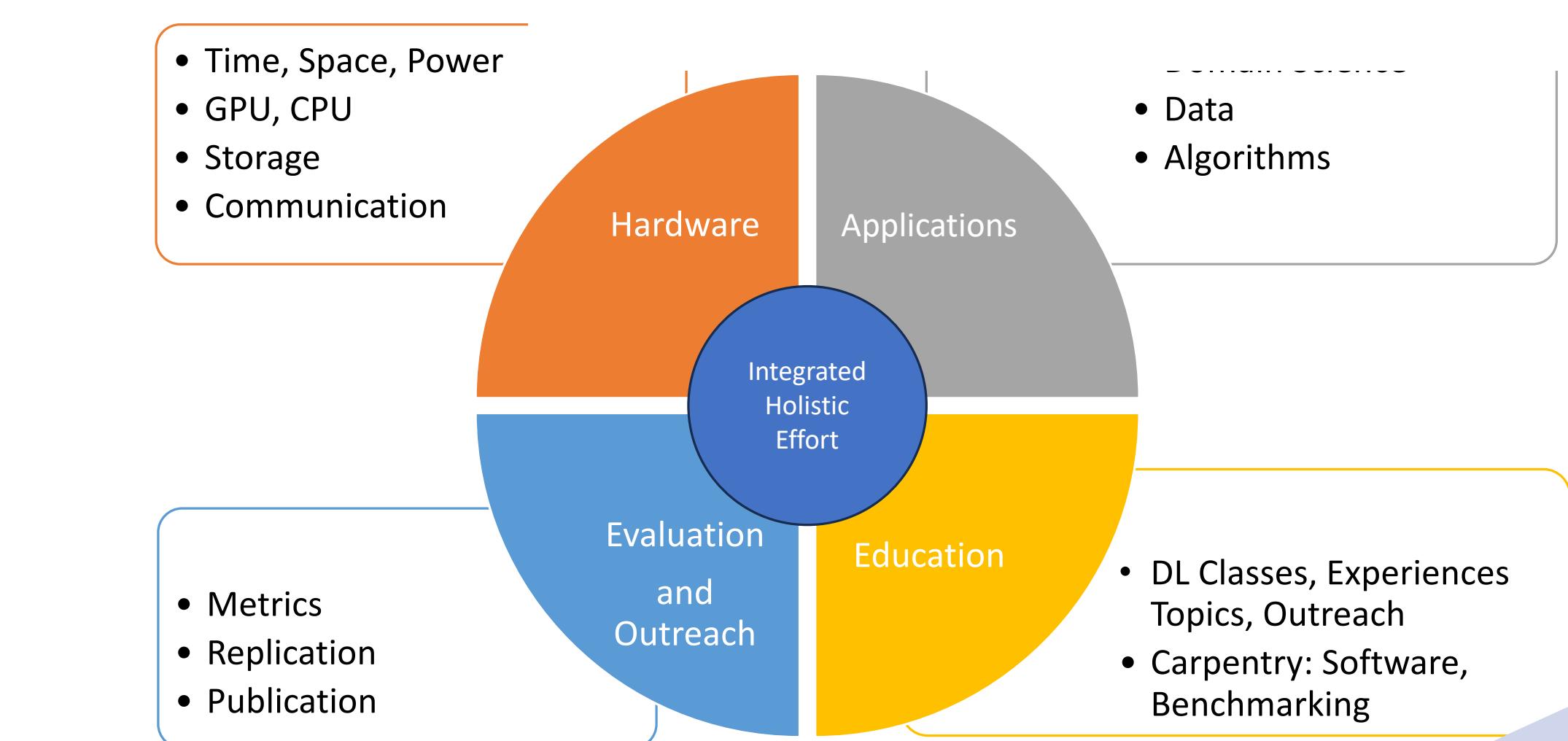
1. Opportunities for Enhancing MLCommons Efforts while leveraging Insights in High-Performance Big Data Systems Gained from Educational MLCommons Earthquake Benchmarks Efforts, G. von Laszewski, J.P. Fleischer, Robert Knuuti, Geoffrey. C. Fox, et.al. Frontiers, 2023, Sep. accepted
2. Artificial Intelligence for Science A Deep Learning Revolution, 2023 A. Choudhary, G. C Fox, T. Hey doi: 10.1142/13123
3. Cloudmesh Experiment Executor, <https://github.com/cloudmesh/cloudmesh-ee>
4. Cloudmesh Compute Coordinator, <https://github.com/cloudmesh/cloudmesh-cc>

Problem:

- Educational efforts often only showcase limited/small AI/DL applications
- Impact of Cyberinfrastructure often not sufficiently covered
- Need for customizable educational components

Solution:

- MLCommons goal is accelerate machine learning innovation (over 70 members from industry, academia, and government)
- Rich set of applications allowing to gain insights into deep learning
- Allows insight into Benchmarking and its issues
- Opportunities to obtain holistic view of interplay between applications, cyberinfrastructure, benchmark requirements
- Outcome: a well-educated research and professional workforce
- Rapid changes in these fields require quick adaptation of material
- Different backgrounds of students require customization of material
- We developed open-source framework and tools that allow customized material to be given to each student after evaluation.
- University, NSF, and DOE machines provide Cyberinfrastructure
- We developed cloudmesh compute coordinator and experiment executor to coordinate AI applications on hybrid machines



Many more applications are available from MLCommons

