Toward Next-generation Ecosystems for Scientific Computing

Harnessing community, software, and AI for cross-disciplinary team science

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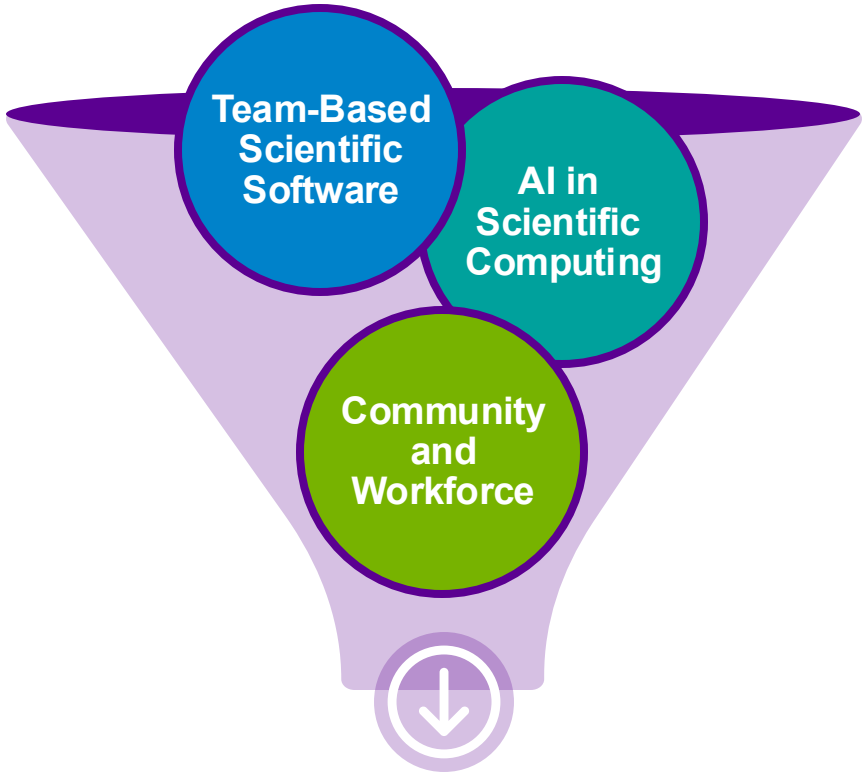
Chicago, IL

Workshop Organizers:
Lois Curfman McInnes, Argonne National Laboratory
Dorian Arnold, Emory University
Prasanna Balaprakash, Oak Ridge National Laboratory
Mike Bernhardt, Team Libra
Beth Cerny, Argonne National Laboratory
Anshu Dubey, Argonne National Laboratory
Denice Ward Hood, University of Illinois Urbana-Champaign
Mary Ann Leung, Sustainable Horizons Institute
Olivia B. Newton, University of Montana
Stefan Wild, Lawrence Berkeley National Laboratory



NEXT-GENERATION ECOSYSTEMS FOR SCIENTIFIC COMPUTING

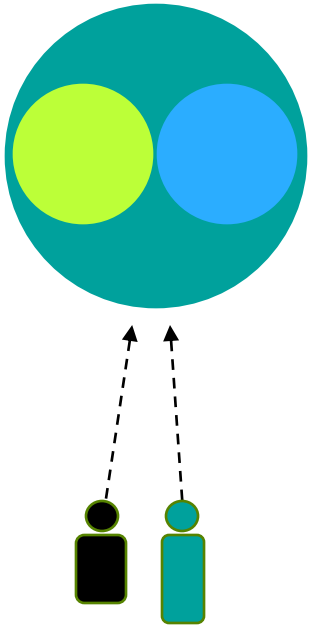
Workshop Report: https://doi.org/10.48550/arXiv.2510.03413

Argonne NATIONAL LABORATORY

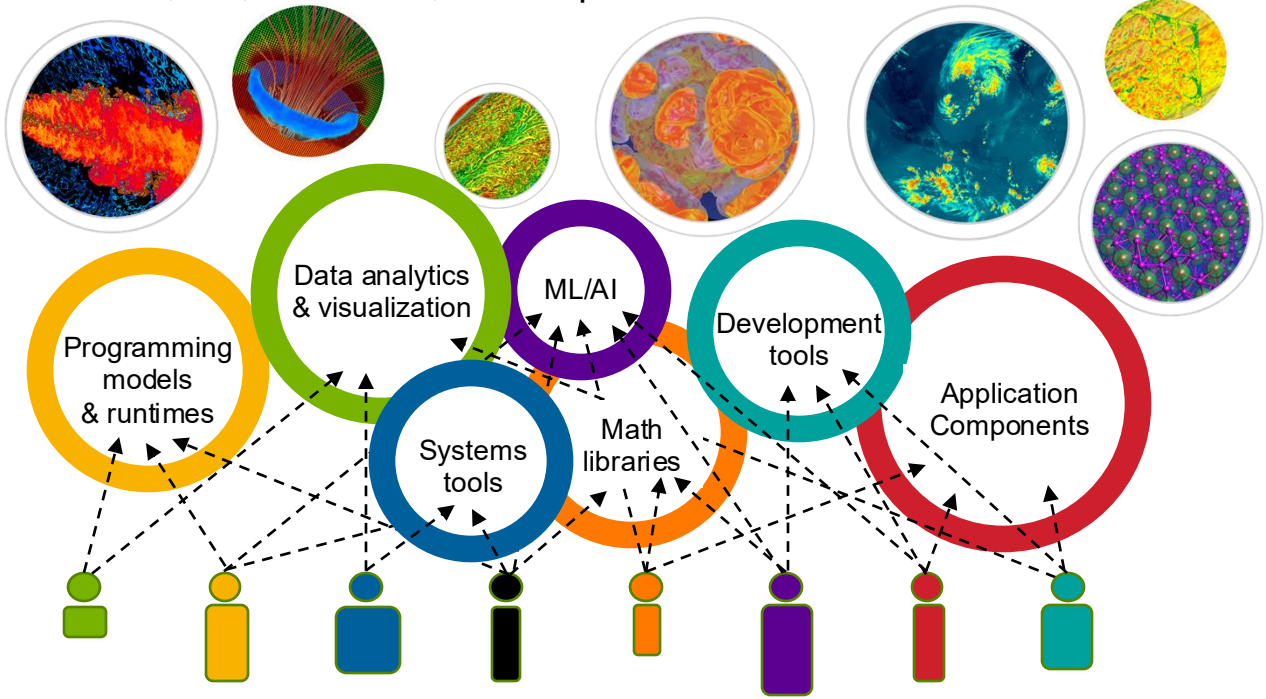
REUSABLE SOFTWARE LIBRARIES AND TOOLS

… provide the foundation of many scientific simulations

Single small team

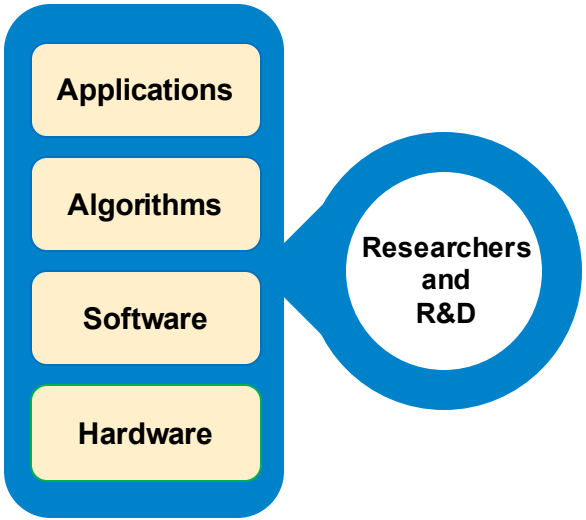


Multiphysics simulation requires expertise across science domains, math, CS, and ML/AI, all encapsulated in software

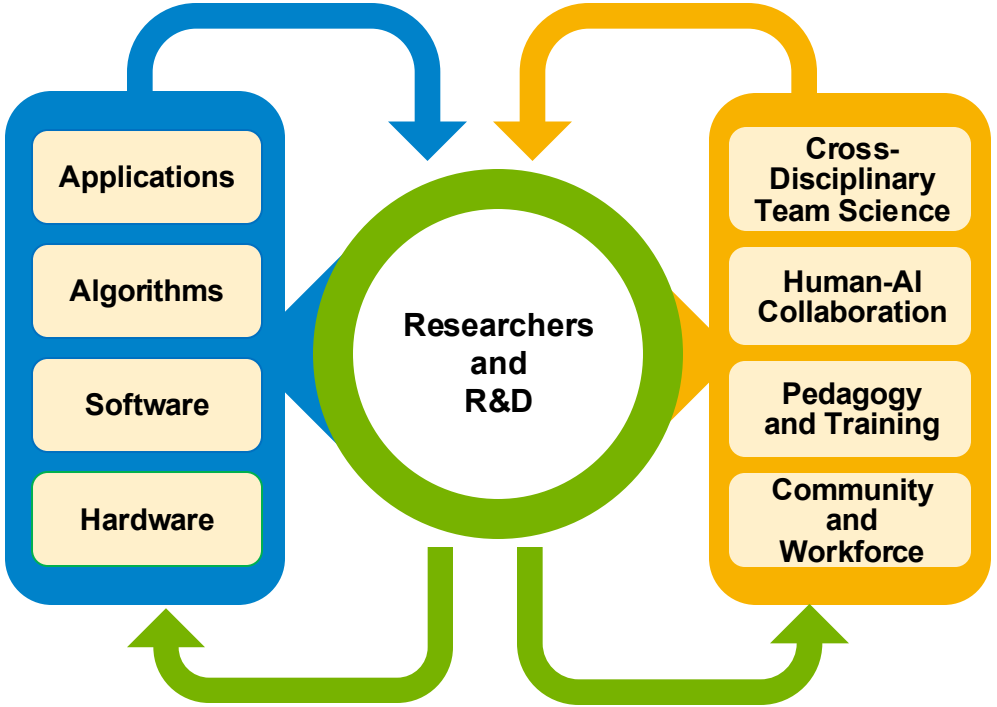


SOCIO-TECHNICAL CO-DESIGN

Traditional co-design for scientific computing



Socio-technical co-design for **future scientific computing**

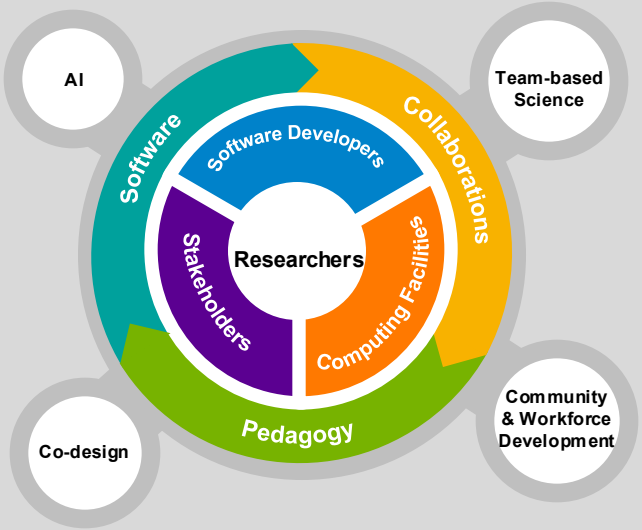


Technical and social co-design interwoven throughout all aspects of work

WORKSHOP REPORT, SEPT 2025

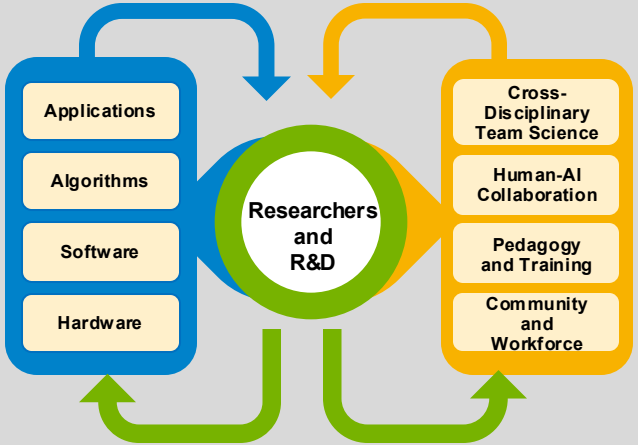
Next-Generation Ecosystems for Scientific Computing:

Harnessing Community, Software, and AI for Cross-Disciplinary Team Science

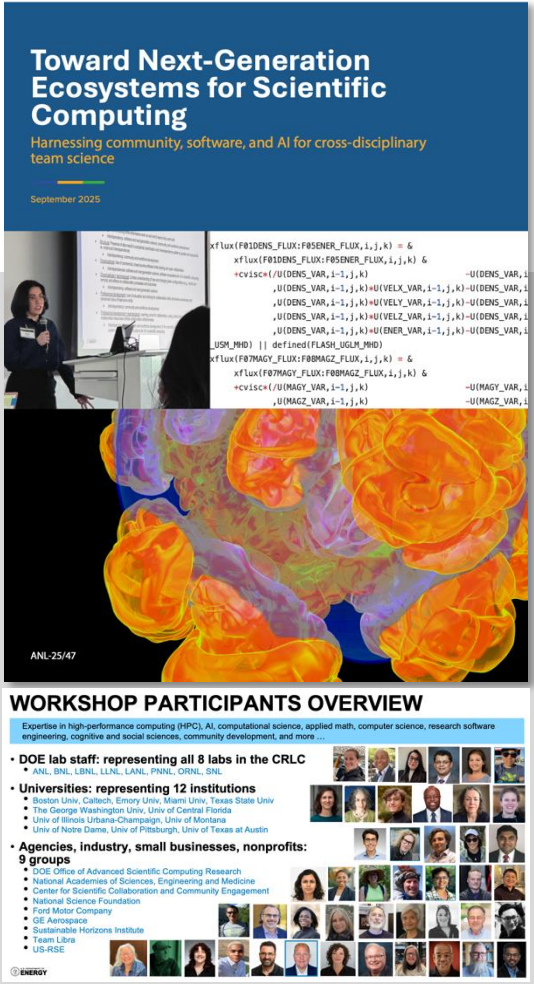


As motivated by the needs of team-based science in an AI-driven future, we must advance software, cross-disciplinary collaboration, and pedagogy through co-design … All while developing workforce and community.

Socio-technical co-design for scientific computing



Technical and social co-design interwoven throughout all aspects of work



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