

AI for Science Training

Argonne Leadership Computing Facility – Enabling
Breakthroughs in Science and Engineering

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Argonne Leadership Computing Facility

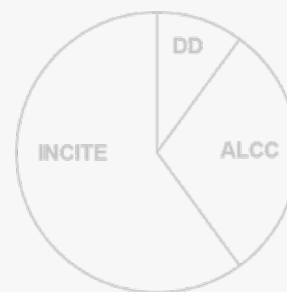


The Argonne Leadership Computing Facility provides world-class computing resources to the scientific community.

- Users pursue scientific challenges
- In-house experts to help maximize results
- Resources fully dedicated to open science



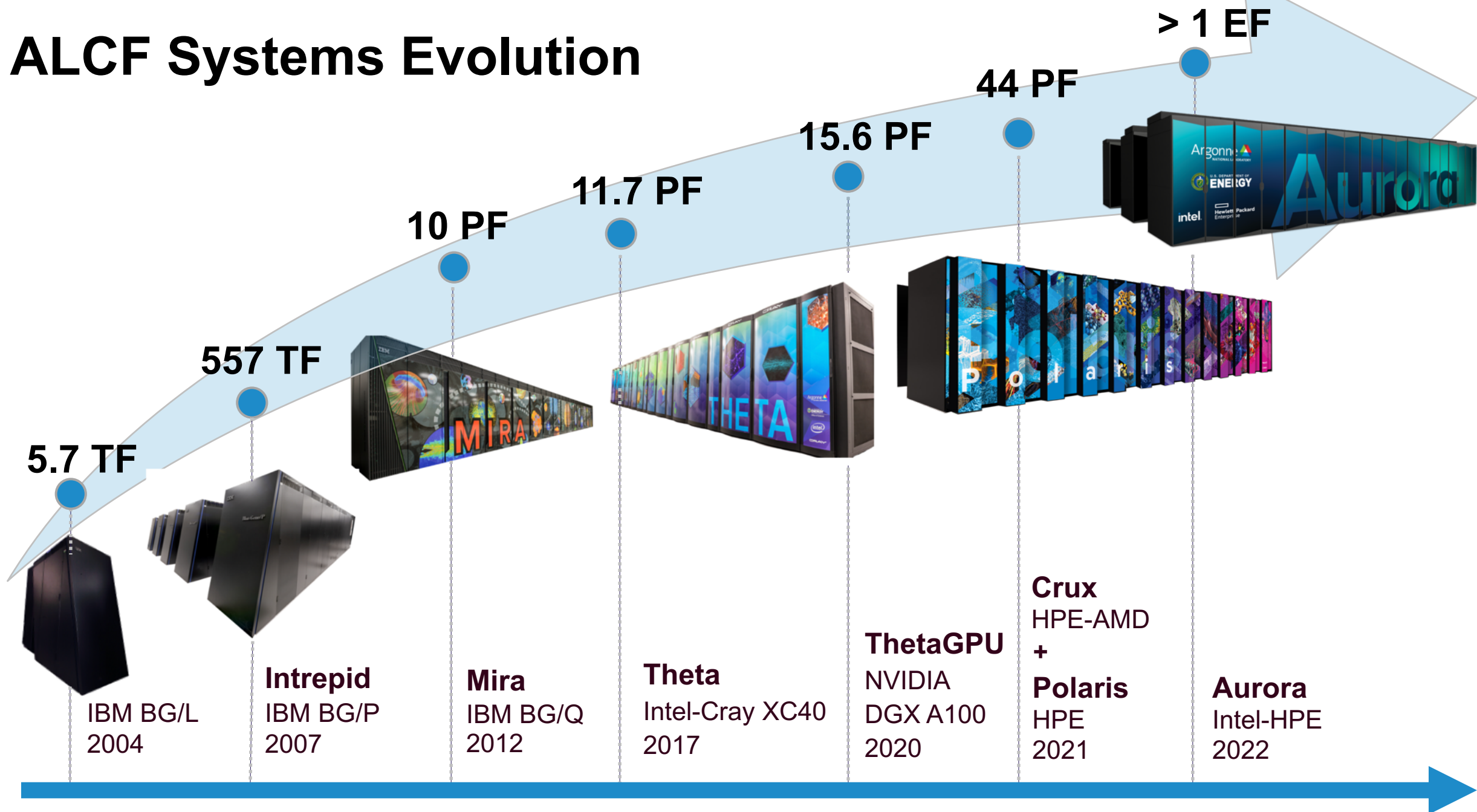
ALCF offers different pipelines based on your computational readiness. Apply to the allocation program that fits your needs.



Architecture supports three types of computing

- Large-scale Simulation (PDEs, traditional HPC)
- Data Intensive Applications (scalable science pipelines)
- Deep Learning and Emerging Science AI (training and inferencing)

ALCF Systems Evolution



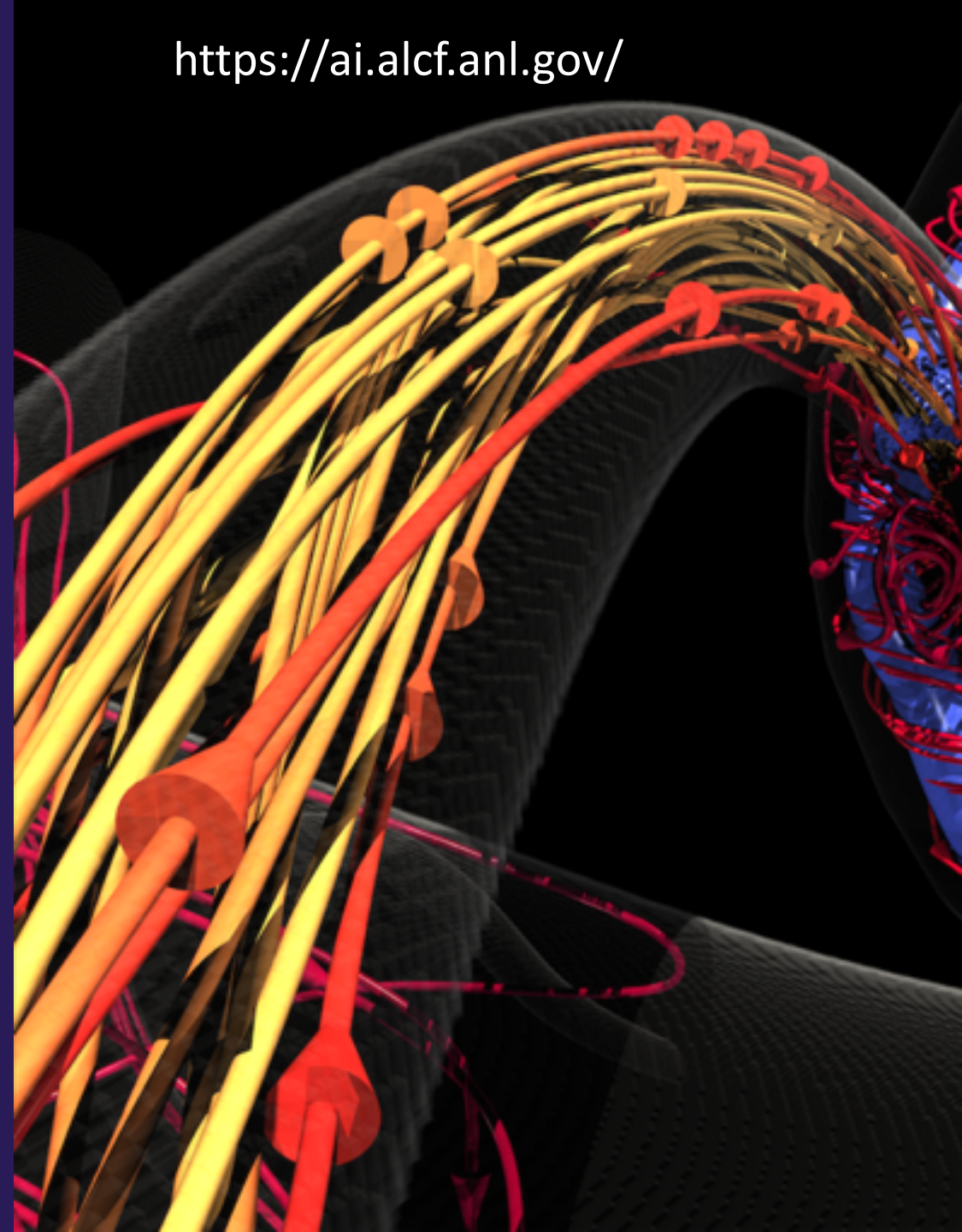
Charging Ahead

Advancing science with HPC

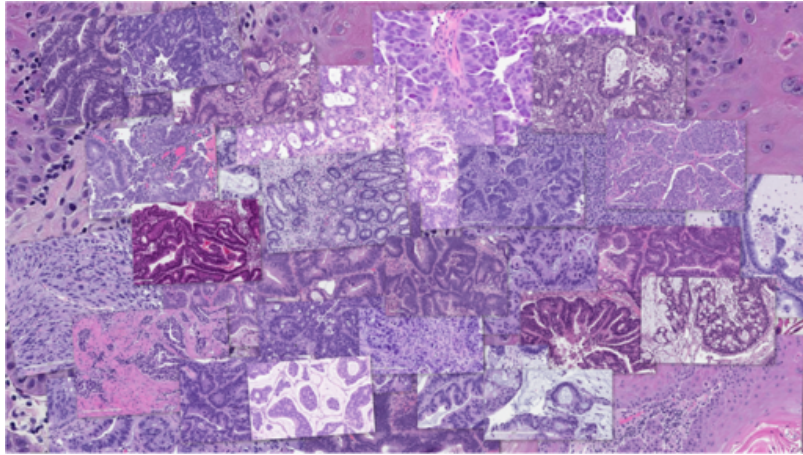
- ALCF AI pathfinding effort provides insights on cutting-edge AI technology and how it improves science outcomes
- Evaluates the usability and performance of machine learning-based applications running on these accelerators
 - a deep learning accelerator, reconfigurable dataflow units, intelligent processing unit- (IPU) based systems
- Ongoing work is guiding the facility toward a future marked by extreme heterogeneity in the compute: CPUs, GPUs, AI, and other accelerators

The following testbed hardware is deployed:

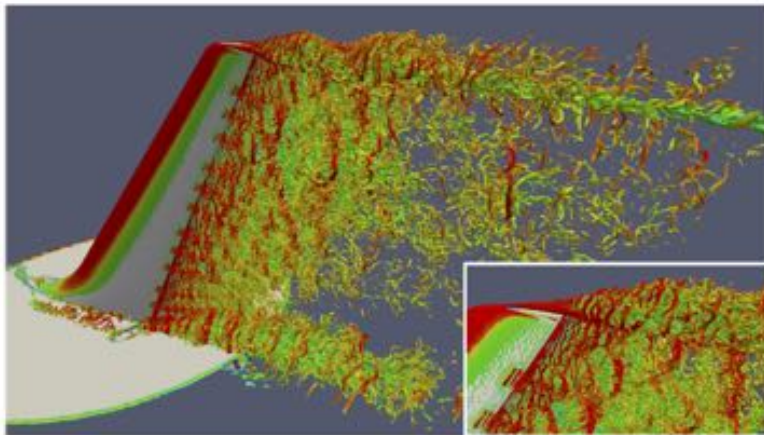
- SambaNova
- GraphCore
- Groq
- Cerebras



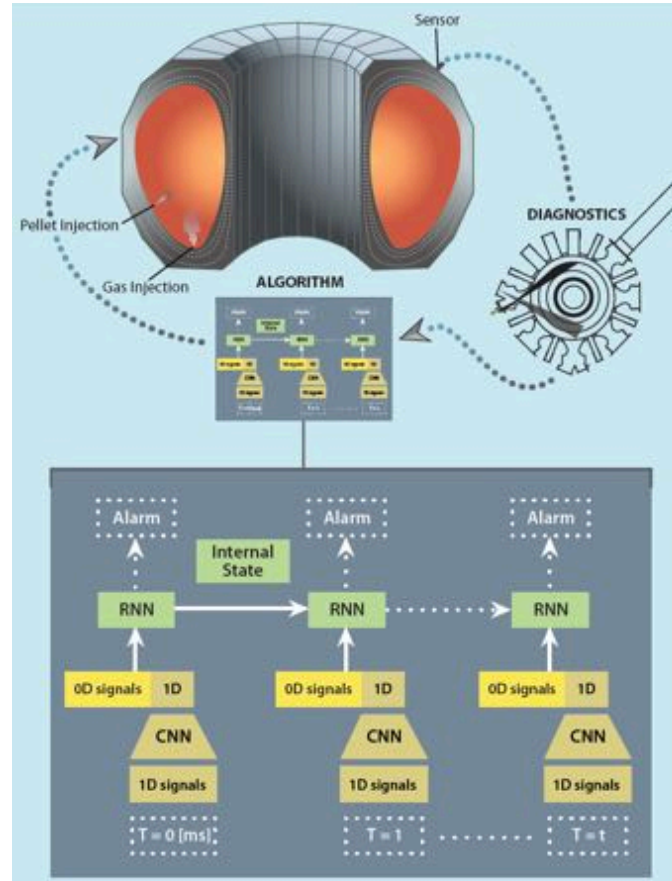
AI FOR SCIENCE APPLICATIONS



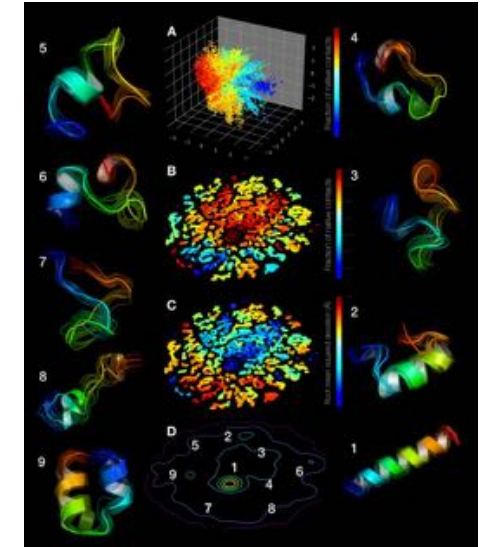
Cancer drug response prediction



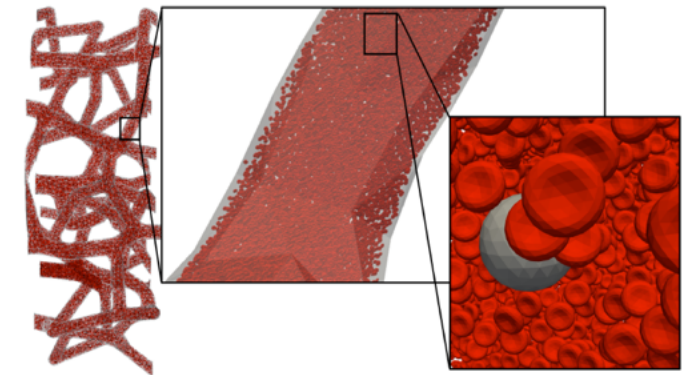
Design optimization of vertical tail/rudder



Tokomak Fusion reactor operations



Protein-folding(Image: NCI)



Understanding metastasis and cancer

Follow the ALCF on Social Media!

The ALCF regularly posts internships, open staff and postdoc positions, opportunities at partner institutions, and training activities on our channels.

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— **LinkedIn:** <https://www.linkedin.com/company/argonne-leadership-computing-facility>

— **Facebook:** <https://www.facebook.com/argonne.lcf/>

— **Training Videos on YouTube:**

<https://www.youtube.com/c/ArgonneLeadershipComputingFacility>