

CI Compass Student Fellowship Program: Increasing Student Participation In Cyberinfrastructure Research And Development



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WHAT IS CI COMPASS?

CI Compass is a National Science Foundation Cyberinfrastructure Center of Excellence

- Provides expertise and active support to cyberinfrastructure (CI) practitioners at NSF Major Facilities (MFs) to accelerate the data lifecycle (DLC) and ensure the integrity and effectiveness of the CI upon which research and discovery depend.

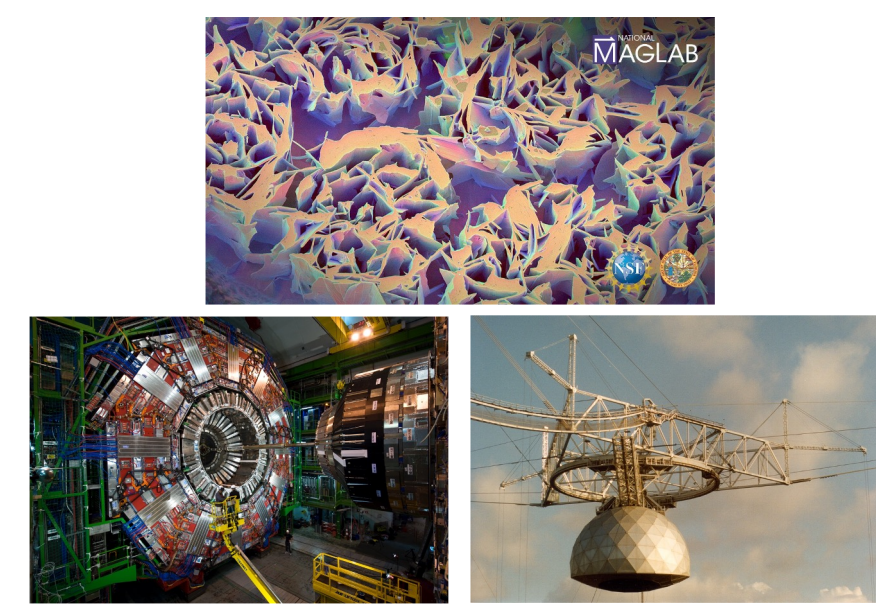


Photo 1: Peter Lee, National High Magnetic Field Laboratory
Photo 2: Maximilien Brice, CERN
Photo 3: NAIC - Arecibo Observatory

CI COMPASS STUDENT FELLOWSHIP PROGRAM (CICF)

Broaden student participation in CI research, development, deployment, and operations

Provides undergraduate student fellows the opportunity to:

- Learn about CI development and MFs
- Develop CI-related skill sets important to the work of MFs
- Engage with CI Compass and MF personnel through a virtual training and research program

WAYS TO PARTNER WITH US

MF Partners for Summer Projects

- We are currently seeking MFs who can provide student fellows with summer experiences at MFs starting Summer 2023.

Faculty Mentors for Student Fellows

- We are recruiting Faculty Mentors to provide student fellows course credit during the Spring Semester program.

Community Feedback

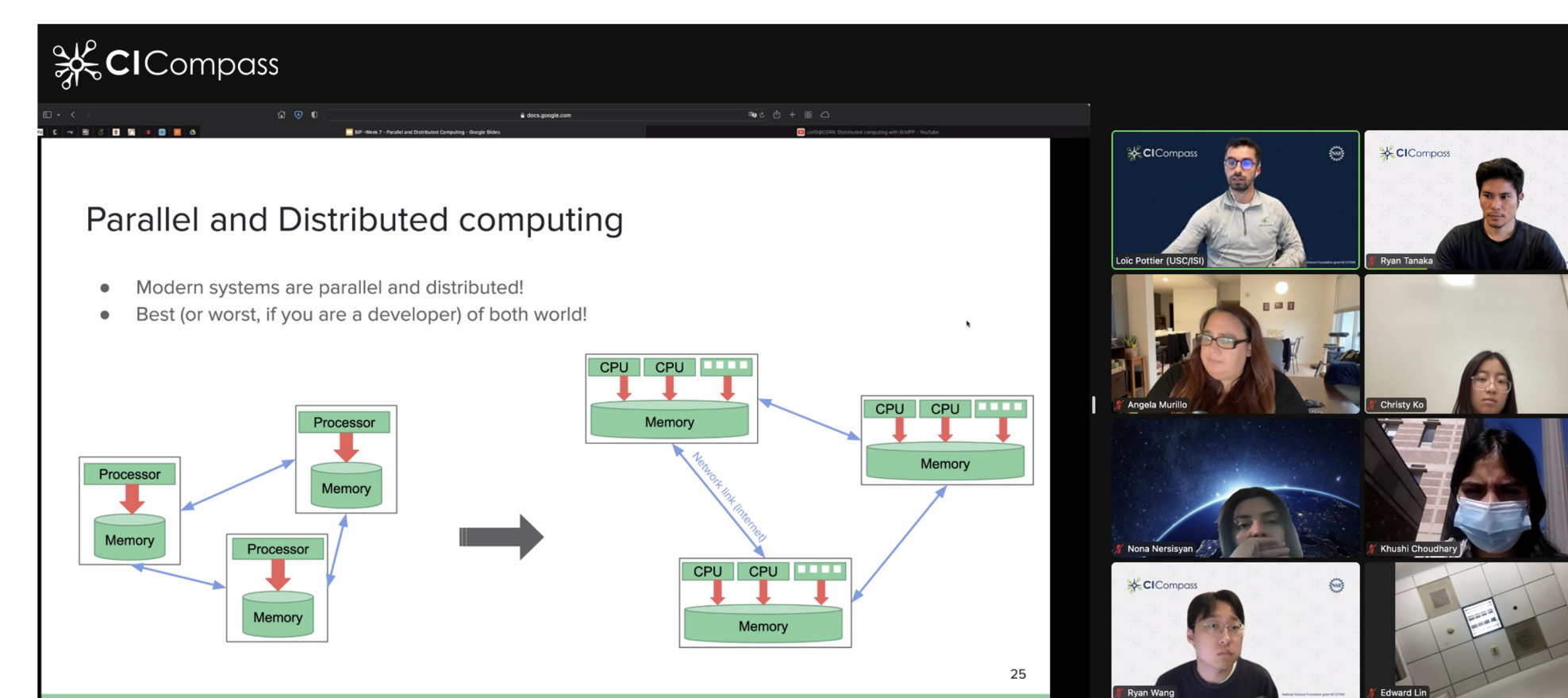
- We are currently recruiting MF and CI community members who would be willing to provide feedback on the program structure and curriculum.

SPRING PROGRAM (12-weeks, virtual)

TECHNICAL SKILLS PROGRAM

Provides students experience in technical skills relevant to CI

- Python, Jupyter, Git, pytest, Containers, Docker, virtual machines
- Parallel and distributed computing
- Cloud computing, Data Workflows, Pegasus

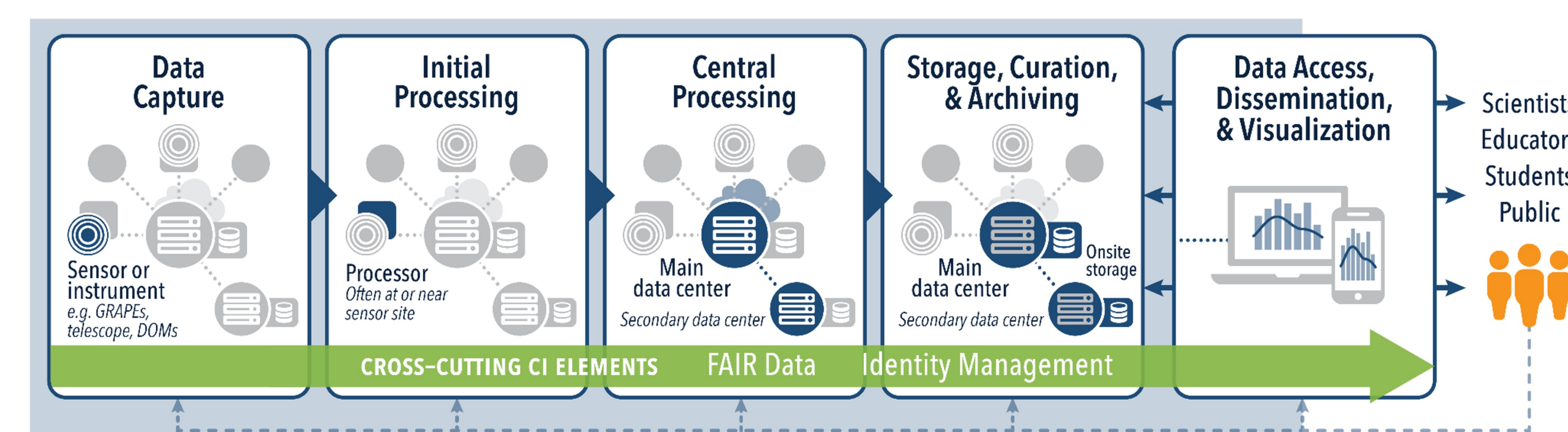


2022 Student Fellows, learning about Parallel and Distributed Computing

RESEARCH SKILLS PROGRAM

Provides students experience researching MFs and the DLC, to help them understand the importance and context of MFs, and the related data and CI

- Research the data lifecycle of specific MFs
- Interact with MF guest speakers
- Conduct MF DLC presentations to CI Compass and MF representatives



Major Facility Data Lifecycle

Christopherson, et al. (2020), <https://doi.org/10.1145/3311790.3396636>

SUMMER PROGRAM

Provides students a hands-on, project-based learning experience with MFs or CI Compass team members

- Employ the relevant skills they learned in the Spring Program
- Gain experience applying their technical skill sets on projects relevant to MFs and CI
- Gain experience working on a technical research team

2022 CICF Summer Program Project

- Student fellows worked with CI Compass team members and utilized the Chameleon Cloud testbed, Pegasus Workflow Management System, and HTCondor for job management to classify lake zooplankton
- Student fellows will present their paper titled "Application of Edge-to-Cloud Methods Toward Deep Learning" at the 2022 eScience Conference poster session in October

Our goal for 2023 is to have CICF Students Fellows at MFs for the summer portion of the fellowship program.

FUTURE PLANS

Expand the scope of the current CICF Program

- Partner with MFs to provide students with summer project opportunities at MFs
- Update the curriculum and program structure based on observations, evaluation data, and community feedback
- Broadly advertise faculty mentoring and student opportunities and include participants from MSIs, HSIs, and Tribal Colleges
- Increase the number of student fellows, faculty mentors, and peer mentors

CONTACT US

- For more information about CI Compass contact us at contact@ci-compass.org
- To learn more about the CI Compass Fellowship program visit, <https://ci-compass.org/about/fellowships/>