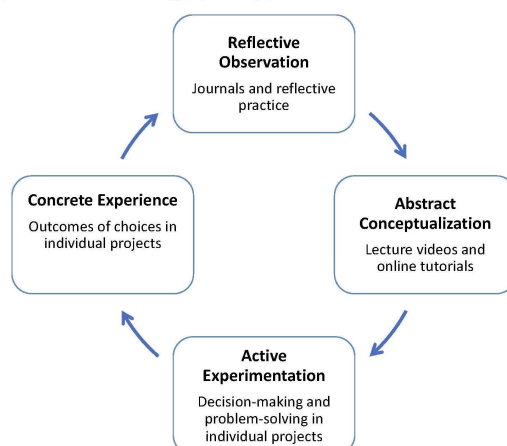


The Experiential Learning Cycle Applied to a Graduate CS&E Course



Research Highlight

How we teach computational science?

CIG's mission was originally focused on creating software for the geodynamics community. Over the years, that focus has expanded to providing education to our community on not only how to use CIG-supported software but to include the spectrum of general computational science knowledge, from using the command line to software development and numerical methods.

A question of interest to many of the people who interact with CIG, is how to structure our students' education in Computational Science and Engineering (CS&E) courses, and what teaching methodologies might work best. Given that one of us teaches courses in this area, we started to look through the education literature. Unfortunately, in contrast to mathematics and many other STEM disciplines, essentially nothing exists on CS&E education. But CS&E presents its own challenges: courses are most frequently taught as Computational X courses (X=physics, chemistry, geosciences), needing to cover breadth rather than depth. Topics commonly found on syllabi might include teaching Linux, programming languages, compilers, general numerical methods, data processing, visualization, and applications to concrete disciplinary projects. [\[full article\]](#)

contributed by

Jill Zaretsky & Wolfgang Bangerth, Colorado State University Fort Collins

News

CIG Distinguished Speakers

We are excited to introduce the 2022-2023 CIG Distinguished Speakers:

- **Subducted Slabs, Mantle Plumes, and the Plate Tectonic Cycle** *Juliane Dannberg, University of Florida*
- **Can we (yet) predict how fast Greenland is going to melt?** *Mathieu Morlighem, Dartmouth College*

Learn more information about their talks and careers in the geosciences [\[more info\]](#).

Apply to Host a Speaker

The CIG Speaker Series seeks to promote computational modeling in geodynamics and related Earth science disciplines. The series aims to bring computational geodynamics speakers to institutions that may not otherwise have access to speakers with expertise in computational science or computational geophysics. By doing so, we aim to connect speakers and CIG with audiences from a variety of STEM domains, and to broaden participation in CIG and to work toward building a more diverse community within computational geodynamics. Institutions interested in hosting a Speaker in 2022-2023 should apply by September 30, 2022.

See the [website](#) for more information.

FAIR4RS - For Research Software

Check out the latest in the FAIR movement. The FAIR4RS Working Group is jointly led by members of the Research Software Alliance (ReSAA), Future of Research Communications and E-Scholarship (FORCE11), and the Research Data Alliance (RDA). This global and interdisciplinary group was established in 2020 with the aim of developing community-endorsed FAIR principles for research software. The WG defines research software as:

Research Software includes source code files, algorithms, scripts, computational workflows and executables that were created during the research process or for a research purpose. Software components (e.g., operating systems, libraries, dependencies, packages, scripts, etc.) that are used for research but were not created during or with a clear research intent should be considered software in research and not Research Software. This differentiation may vary

between disciplines.

The FAIR4RS Principles are:

F: Software, and its associated metadata, is easy for both humans and machines to find.

A: Software, and its metadata, is retrievable via standardized protocols.

I: Software interoperates with other software by exchanging data and/or metadata, and/or through interaction via application programming interfaces (APIs), described through standards.

R: Software is both usable (can be executed) and reusable (can be understood, modified, built upon, or incorporated into other software).

From Hong *et al*, 2022 [\[full article\]](#)

Website Navigation Tip - Software

Landing pages for software can be accessed in several ways. The fastest way is by scrolling down on our home page and clicking on its name. Or try viewing the entire catalog by clicking on the *Discover more software* button on the bottom of the home page or selecting *Software > Download* from the toolbar. Select a *Tag* to filter the *Resources*. Select a resource and click on its name to access its landing page. Software can be accessed through its landing page by either clicking the top button or by navigating to *Supporting Docs* to select the resource you wish to download.

Governance

Nominations Open

Nominations are now open for this year's elections - 2 seats are open on the Executive Committee and 2 on the Science Steering Committee. We are thank Claire Currie and Bruce Buffet for their leadership on the EC and SSC members Juliane Dannberg and Scott King for their contributions to the community. Email the Nominations Committee your nominations for these key governance positions as we look towards CIG IV. A candidate can be placed on the slate by the Nominating Committee or by nomination by three Member Representatives. [\[email\]](#)

Working Groups

CIG seeks to engage its community and encourage new ideas by seeking members interested in participating as a member of a current working Group or starting a new Focused Working Groups (FWG). New FWG's should address a specific topic and have a clearly defined scope e.g., workshop, white paper, benchmark, etc. A WG should define concrete outcome(s) achievable within a short time frame, < 2 years. Anyone can propose one! We look forward to your ideas in continuing the CIG community's dynamic leadership in the Earth sciences. [\[apply\]](#)

Events

Webinars

CIG Monthly Webinars are the second Thursday of the month at 2P PT. Watch the [forum](#) for the announcement of the 2022-2023 Webinar schedule.

Workshops

Aug 28 - Sep 2 [Ada Lovelace Workshop](#)

September 11-17 [Rayleigh Hackathon](#)

October 26-27 [SPECFEM Workshop for Developers](#)

Fall Seismic Cycles Workshop

November Business Meeting

Registration for Workshops will be announced as they become available.

Remember to join our [forum](#) to receive announcements for these and other 2022-2023 events.

New Releases

ASPECT 2.4.0 24 July 2022

PyLith 3.0.0 6 June 2022

Rayleigh 1.1.0 5 May 2022