

Interdisciplinary Computational Science and Engineering (ICSE)

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Earlier meetings

- There is significant interest in computational science and engineering: on the Boulder campus, other campuses at the U. of Colorado and other institutions along the front range.
- Preliminary meetings regarding an ICSE effort on the Boulder campus were held in the fall 2007 semester—approximately monthly.
- The first question to be addressed: what efforts, if any, should take place on the Boulder campus?

Broad framework

- Large scale computational research/investigations are wide spread among units on the Boulder campus.
- An ICSE effort is likely to require substantial collaboration, crossing boundaries between fields.
- Is there value/need to provide structure for a broad ISCE effort and should there be specific curricula for a campus-wide interdisciplinary computational science and engineering graduate program?

New Knowledge

- There are new and emerging fields in ICSE- driven by new concepts and new research directions. There is a wealth of data that is generated for many applications: data mining.
- There are well-known research areas that now can be significantly advanced with high performance computing/machine development. Software and hardware developments have been impressive.
- There are regular conferences/journals dedicated to CSE.

Courses-degrees-models

- How can we effectively and efficiently teach computational science and engineering? Courses in ICSE might be taught by faculty as cross listed courses or as new courses.
- ICSE effort could provide: degrees- Ph.D., Masters, Professional Masters and Certificates; a forum for new ideas/concepts.
- What model(s) might be most appropriate for us?
- Assuming there is broad and serious interest in ICSE, how to move forward...

Committee—issues

- Faculty committee would need to be formed.
- Need to establish ideas, concepts for what model/models might be most appropriate for us.
- General curriculum issues could be discussed— courses/ degrees etc.
- Faculty could be new faculty or existing faculty, housed either partially or entirely within ICSE. ICSE might search for new faculty as joint with other units or entirely within CSE.

Some efforts on other campuses

- U. Texas Austin—"Institute"
- Florida State Univ. –"School"
- U. Calif. Davis—"Center "
- Stanford—"Institute for Computational and Mathematical Engineering"
- University of New Mexico—"Center for High Performance Computing" –Certificate Program

Efforts on other campuses–con't

- U. Illinois –Graduate Program
- U. Calif. Santa Barbara-interdisciplinary effort-IGERT
- Cal Tech, Chicago, McGill University, Purdue University
... multi-disciplinary efforts

Main question

- IS THIS THE TIME?

Namely:

- Is this the right time for the Boulder campus to move forward with a serious ICSE effort?