NSF/TCPP CDER Telecon on Book Project

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Agenda

- 5 min - Webinar logistics
- 5 min - CDER Center overview
- 15 min – To learn about early adopters' and other's experiences, their needs, current gaps
- 35-50 min - Discussion on book project, book's content
- 10 min – Solicitation for contributions to web resource
- 10 min - Follow up discussion on EduPar-13, improvements needed for EduPar-14

Webinar Logistics

- Use “raise hand” button to ask staff to speak.
- Submit questions for answer online or offline post telecon
- **Initiate chat**
  - To an individual, or
  - To all

Center for Parallel and Distributed Computing Curriculum Development and Educational Resources (CDER)

- Develop PDC core curricula flexible enough for a broad range of programs and institutions; collaborate with all stakeholders
  - Curriculum Site: **http://www.cs.gsu.edu/~tcpp/curriculum**
- Develop, collect, and synthesize pedagogical and instructional materials for teaching PDC curriculum topics*
  - Website setup
  - Book Project
- Facilitate access to state-of-the-art hardware and software resources for PDC instruction and training by instructors and students*
  - Linux cluster access for instructor/student access
  - Access to GENI, XSEDE resources
  - Email me
- Organize Early Adopter Competitions and EduPar workshops, and related events*
  - Fall-13 early adopter competition – deadline June 30
  - Invitation for reviewers

* Call for participation and contribution

Your experience and current resources (15 min)

- What resources are you able to tap into?
  - Experiences teaching core courses with PDC topics
  - Textual and reference material employed,
    - Books/Chapters
    - Article/Essay
    - Lecture Module
  - Your needs, current gaps?

- What is missing in the PDC curriculum?

ALGORITHMS
- Parallel and Distributed Models and Complexity
- Algorithmic Paradigms
  - Divide & conquer (parallel aspects)
- Algorithmic problems

ARCHITECTURE

PROGRAMMING

CROSS-CUTTING

CDER Book Project (40-50 min)

- Lack of suitable textbooks to integrate PDC topics into the core courses
  - CS1, CS2, Systems, and Data Structures and Algorithms
- Part I - For instructors: Basic Concepts and References on what and how to teach
    - Sample essays on Asymptotics, Scalability, and Synchronization posted; A few on Parallel Time, Pipelining, Shared Memory Programming underway
- Part 2: For students: Supplemental teaching material for core courses

CDER Book Project

- Part 1: For Instructors
  - *Definitions/Concept*
  - *Illustrate pitfalls/limitations*
  - *Where it could be covered? Along with which topics?*
  - *What are good examples to employ in CS0, CS1, CS2, DS/A, etc.*
- The book may have progressively sophisticated treatment, allowing instructors to cover a subset of initial subsections as appropriate for each course.
  - For example, 4.1 in CS1, 4.1,4.2 in CS2, 4.3 and 4.4. in DS/A, etc.
  - May not have to worry too much in terms of difficulty of sections.
  - It is better to cover in more depth, than to leave out a topic.
- Identify how PDC concepts reoccur across topics/courses
- The section/chapters will be more or less complete treatment of chosen topic/problem/example.

CDER Book Project

- Part 2: For students
  - Supplemental textual material for core courses
    - textbook supplement
    - portions of custom textbook
    - authors can draw upon for their own writings
  - Students should be able to rely on this writeup for learning, exercises, …
  - This would be unique material
    - which cannot be readily found elsewhere (current texts, slides, web, etc.)

- Discussion on book's content
- Other ideas?

Call for Proposals (15 min)

Submit proposals ½ - 1 page – deadline **June 28**

- Context: PDC topic hierarchy
- Part 1: For instructors
  - Cohesiveness an important goal
  - Independent essays welcome
- Part 2: For students
- Collaborative teams possible
  - Post-proposal team may also be formed
- Readable, complete, usable, adaptable, not a information dump

– Proposal Review – notification deadline **July 15**

– Submit sections/essays/parts/chapters – deadline **Aug 22**

– **Q&A**

Solicitation for Contribution to CDER Courseware Website

Upload and Search Course Material

- **Type:**
  - Slides, Syllabus, Tutorial, Video
  - Animation, Article, Award, Blog, Book, Competition
  - Course Template, Course Module, Data
  - Hardware Access, Software/ Tools
  - Proposal, Report
- **Courses:**
  - CS1, CS2, Systems, Data Structures and Algorithms, …

- **NSF/TCPP Topic/Subtopic Classification:**

ALGORITHMS
- Parallel and Distributed Models and Complexity
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Early Adopter Program

- Total 80 institutions worldwide
  - Spring-11: 16 institutions ; Fall'11: 18;
  - Spring-12: 21; Fall-12: 25 institutions
  - Most from US (4 year to research institutions);
    - some from South America, A few from Europe, fewer from Asia (India, China).
- **Fall-13 round of competition:** Deadline June 30, 2013
  - NSF/Intel funded cash awards ranging from $1k-2.5K + certificate
  - *Which course(s) , topics, evaluation plan?*
- **Instructors for core CS/CE courses** such as CS1/2, Systems, Data Structures and Algorithms – department-wide multi-course multi-semester adoption preferred
  - Elective courses; graduate courses,
  - Computational Science, computational courses of STEM disciplines

Follow up discussion on EduPar-13, improvements needed for EduPar-14

- *What worked*
- *What did not work*
- *2 day workshop?*