EduHPC-18: Workshop on Education for High-Performance Computing
+ NSF/TCPP Curriculum Initiative
NSF Advanced Cyberinfrastructure Programs

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Big Thanks to EduHPC’18 Organizers!

• **Program Chair and Co-Chair:**
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• Next Workshops
  – EduHiPC @HiPC, Dec 17, India
  – EduPar’19 at IPDPS, Rio, Brazil, May 2019
• JPDC Special Issue – for Edu*
  – 2017 workshop published
  – 2018 – Watch for CFP
• Sponsors:
  – Intel, NSF, IEEE TCHPC, IEEE TCPP
NSF/TCPP Curriculum Initiative
What Should every Computer Science and Engineering Student know about Parallel and Distributed Computing (PDC)?  

http://www.cs.gsu.edu/~tcpp/curriculum/

• Revision ongoing
  • Aspects: Energy, Distributed, Big Data, Pervasive topics
  • Timeline: Version-II by IPDPS’19

• 11:50-12:30: Session on Curriculum Update:
  • Feedback/Participation needed: Flyer being distributed

• Next Curriculum Events:
  • SIGCSE Workshop on PDC Curriculum, Feb 27 - Mar 2, 2019, Minneapolis
    • “Modernizing Early CS Courses with Parallel and Distributed Computing”
  • NSF/CDER Curriculum Revision Workshop – Spring 2019
NSF/TCPP Curriculum Initiative – contd.

- **New CDER Book (2\textsuperscript{nd} in series):**
  - Topics in Parallel and Distributed Computing - Enhancing the Undergraduate Curriculum: Performance, Concurrency, and Programming on Modern Platforms, *Springer*
  - Free Pre-Print Version on CDER site
  - Upcoming CFP for 3\textsuperscript{rd} Volume – Experience of Adopters
    - Exemplars + Resources on courses and topics
- **CDER Heterogenous Cluster**
  - Multi-core, GPU, Shared/Distributed Memory, *Hadoop/Spark*
  - Ask for class accounts
- **Spring-19 early adopter competition** – **Deadline: Feb 12**
  - NSF/Intel funded Stipends up to $5K/proposal; 2-4 page proposals
NSF Office of Advanced Cyberinfrastructure (OAC)
LWD: Learning and Workforce Development

Student Research Training
- REU SITES
- NRT

Faculty Research
- CRII
- CAREER
- Expeditions

Training/Workforce Development
- CyberTraining NSF 19-524
- Deadline Feb 6, 2019
- Revised

OAC-Core Research Program
- New Solicitation NSF 18-567
- Deadline Nov 15, 2018
CyberTraining – NSF 19-524

Training-based Workforce Development for Advanced Cyberinfrastructure

• Goals for research workforce preparation
  1. Broad adoption of CI tools/methods, or
  2. Curriculum/Instructional Materials Development and Integration

• Three project classes:
  • *Pilot:* Exploratory activities, $300K, 2 yrs
  • *Implementation:* Broadly accessible to community
    • *Small:* $500K, 4 yrs
    • *Medium:* foster a community, $1M, 4 yrs
  • *Large-scale Project Conceptualization:*
    • Planning grants for potential future institute-like CyberTraining projects, $500k, 2 yrs

• No separate tracks, still 3 communities of concerns
  • CI Professionals, CI Contributors, and CI Users

• Participation:
  • ENG, GEO, SBE, MPS (AST, DMR, Phy), EHR/DGE, CISE/CCF
  • *OAC - lead;*

• Excellent community response
  • 40% additional submissions in 2nd round!
  • About 25 awards made in FY16 and FY17

• Next Deadline:
  • Feb 6, 2019
  • Watch OAC newsletter for Webinar details

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send an email to: [ACI-ANNOUNCE-subscribe-request@listserv.nsf.gov](mailto:ACI-ANNOUNCE-subscribe-request@listserv.nsf.gov)
OAC Core Research Program
SOLICITATION NSF 18-567

- **Translational research** (spanning design to practice) in all aspects of advanced cyberinfrastructure (CI) to transform science and engineering research:
  - Other characteristics: multi-disciplinary, extreme-scale, driven by science and engineering research, end-to-end, or deployable as robust research CI
- **Research Areas**
  - **Architecture and middleware for extreme-scale systems:**
    Design, benchmarking, and analysis; storage, networks, and input/output (I/O) Resource management, monitoring, fault tolerance, and cybersecurity
  - **Scalable Algorithms and Applications:**
    Numerical and high-performance scientific computing methods; Data, software and visualization; and Modeling and simulation
  - **Advanced Cyberinfrastructure Ecosystem:**
    Programming languages, libraries, and environments; Tools; Sociotechnical aspects
- **Research Communities:** Multiple disciplinary areas supported spanning Computer as well as Computational and Data-driven Science and Engineering

- Part of CISE’s coordinated core program solicitations
- Only Small proposals in FY’19
- Funding amount $7.5M
- Max $500K/award;
- Due Nov 15, 2018
- PI’s strongly encouraged to send 1-page project summary for further guidance.
- Webinar: Aug 7, 2 pm EDT