

EduHPC-18:

**Workshop on Education for High-Performance
Computing**

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NSF/TCPP Curriculum Initiative

NSF Advanced Cyberinfrastructure Programs

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Big Thanks to EduHPC'18 Organizers!

- *Program Chair and Co-Chair:*
 - Erik Saule, UNCC; Debzani Deb, WSSU
- *Peachy Assignment Coordinator:*
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 - Satish Puri, Marquette
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 - Alan Sussman, U Maryland
 - Charles Weems, U Massachusetts
 - Ramachandran Vaidyanathan, LSU
- *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 (2nd 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 3rd 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

To subscribe to the *OAC Announce Mailing List*,

send an email to: 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