THE COMPUTING COMMUNITY CONSORTIUM (CCC)

September 2019

CCC
Computing Community Consortium
Catalyst

AN OVERVIEW OF THE COMPUTING COMMUNITY CONSORTIUM

- Established in 2006 as a standing committee of the Computing Research Association (CRA)
- Funded by NSF under a Cooperative Agreement
  - Third Award began in April 2018
- **Facilitates the development of a bold, multi-themed vision for computing research – and communicates this vision to stakeholders**
- Led by a broad-based Council
- Staff based at CRA

CCC
Computing Community Consortium
Catalyst

COMPUTING COMMUNITY CONSORTIUM

The **mission** of Computing Research Association's Computing Community Consortium (CCC) is to **catalyze** the computing research community and **enable** the pursuit of innovative, high-impact research.

Who

- **Council – 20 members**
- **CCC/CRA Staff**
- **Chair, VC, & Director**

Inputs: Bottom-up, Internal, & Top-Down

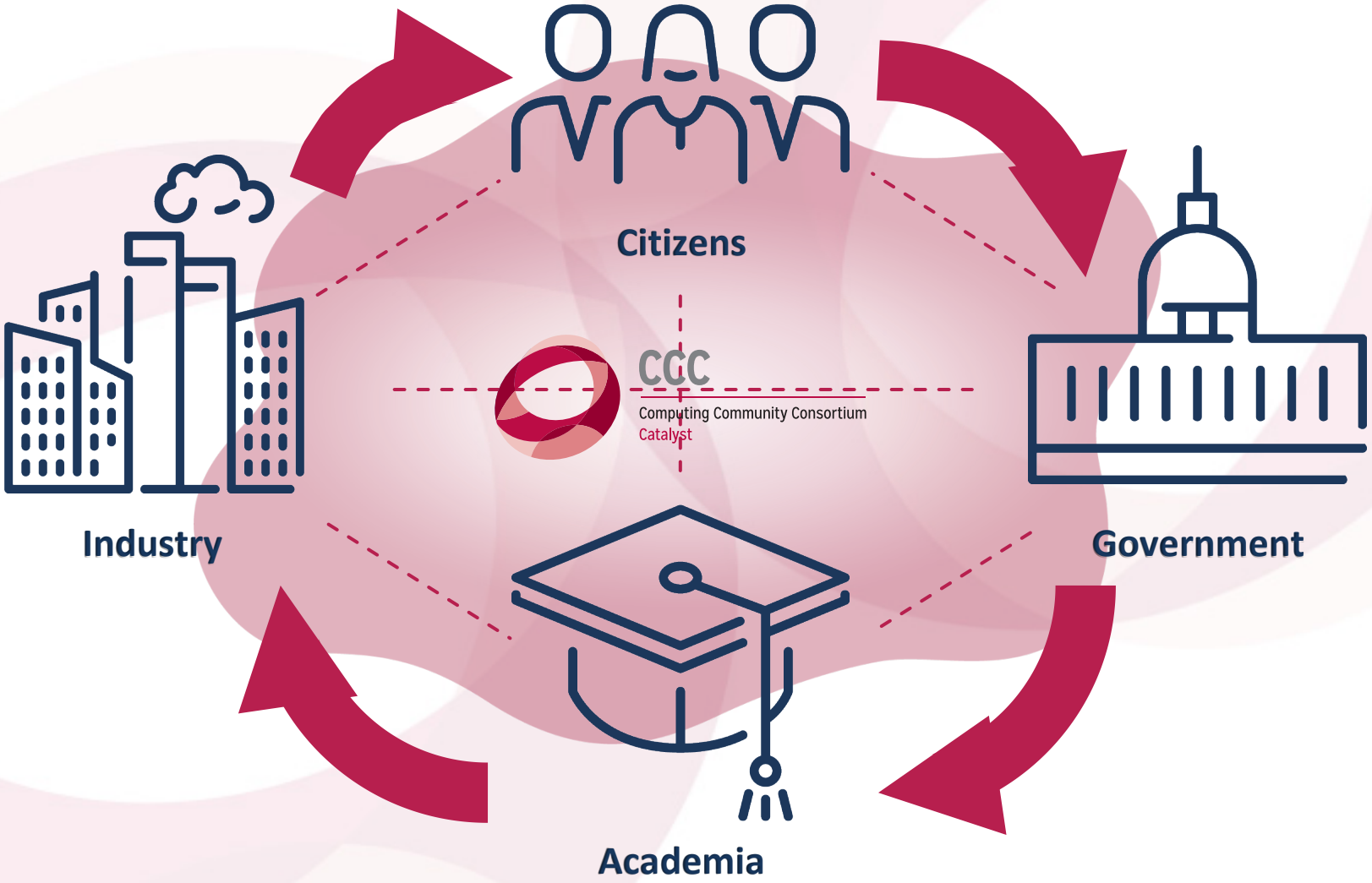
What:

- **Workshops & Conf. Blue Sky Tracks**
- **Whitepapers & Social Media**
- **Reports Out (esp. to government)**
- **Biannual Symposium**

Professional Development

- **Early Career Workshops & Participation**
- **Council Membership**
- **Leadership w/ Gov't (LISPI)**

CCC: CATALYZING I.T.'S VIRTUOUS CYCLE



Icons modified from Zlatko Najdenovski, Flaticon

MAJOR STAKEHOLDERS

- Computing Research Community
  - CRA members
  - CSTB (Computer Science and Telecommunications Board, part of National Research Council)
  - Professional societies
  - Academic units
  - Research labs
- Industry
  - Computing industry, Major users of IT
- Public
- Government

CCC
Computing Community Consortium
Catalyst

GOVERNMENT STAKEHOLDERS

Agencies that are particularly important to us

- NSF – strong ties with CISE
- NIH – growing ties with folks interested in Health IT
- DARPA – ties come and go
- DoE – ties with ASCR; interest in ARPA-E
- NITRD – entre to interagency working groups

Others that are relevant

- NIST
- HHS/ONC
- IARPA
- DoT
- DHS
- OSTP

CCC
Computing Community Consortium
Catalyst

ORGANIZATIONAL STRUCTURES

CCC
Computing Community Consortium
Catalyst

CCC ORGANIZATIONAL STRUCTURE

Chair, Vice-chair

- 2 year non-staggered terms
- Vice-chair is presumptive chair

Director and Senior Program Associates (2)

- Full-time paid positions

Executive Committee

- Chair, Vice-chair, Director
- 3 at large drawn from Council for 1-year terms
- CRA Executive Director

Council

- 20 members
- 3 year terms, at most 2 consecutive terms

Support

- As needed, from CRA Staff

CCC
Computing Community Consortium
Catalyst

THE CCC COUNCIL – EXECUTIVE COMMITTEE

- Members:
  - Mark Hill, University of Wisconsin, Madison (Chair)
  - Liz Bradley, University of Colorado Boulder (Vice Chair)
  - Nadya Bliss, Arizona State University
  - Dan Lopresti, University of Lehigh
  - Suresh Venkatasubramanian, Univ. of Utah
  - Ann Schwartz Drobnis, Director
  - Andy Bernat, CRA Executive Director

WHAT DOES EXECUTIVE COMMITTEE DO?

- Each member has a major responsibility within the organization
- Oversees the work of subcommittees and working groups
- Guides the planning of new activities
- Oversees the execution of the Strategic Plan and annual Implementation Plan
- Meets biweekly by teleconference

CCC
Computing Community Consortium
Catalyst

THE CCC COUNCIL

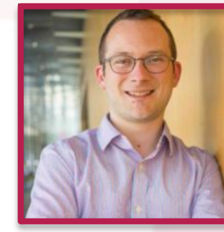
Chair: Mark Hill, Univ. Wisconsin
Vice Chair: Liz Bradley

Terms ending June 2022
- Sujata Banerjee, VMware
- Elisa Bertino, Purdue University
- Tom Conte, Georgia Tech
- Maria Gini, University of Minnesota
- Chad Jenkins, University of Michigan
- Melanie Mitchell, Portland State University
- Katie Siek, Indiana University

Terms ending June 2021
- Ian Foster, University of Chicago
- Ronitt Rubinfeld, MIT
- Suresh Venkatasubramanian, Utah
- Daniel P. Lopresti, Lehigh University
- David C. Parkes, Harvard
- Shwetak Patel, Univ. Washington

Terms ending June 2020
- Nadya Bliss, Arizona State
- Juliana Freire, NYU
- Keith Marzullo, Maryland
- Greg Morrisett, Cornell
- Jennifer Rexford, Princeton
- Ben Zorn, Microsoft Research



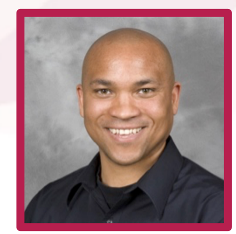















COUNCIL MEMBER EXPECTATIONS

- **Attend three, face to face council meetings annually.**
- **Participate in monthly council calls.**
- **Participate in a CCC task force, including monthly phone conferences.**
- Write 1-3 CCC blog posts annually.
- Include a “learn about the CCC” meeting when visiting universities, research labs and agencies relevant to CCC’s mission.
- Participate in agency visits.
- Participate in biennial CCC activities such as the CCC Symposium and CRA’s Snowbird.
- Work with CCC communication staff, including freelancers, to produce articles for general consumption.

WHAT DO COUNCIL MEMBERS DO?

- **Shepherd visioning activities**
- **Participate in topical task forces**
  - Examples: cybersecurity and cybercrime, systems and architecture, industry/academia relations, etc.
  - Produce and curate relevant resources
  - Monthly teleconferences
- Develop and lead new activities
  - Examples: CIFellows, LISPI, …
- Engage with government agencies, industry, and sister organizations (NSF, ACM, Big Data Hubs…)
- Write white papers and blog posts
- Other requests as needed
- Monthly teleconferences
- Three face-to-face meetings each year

CCC
Computing Community Consortium
Catalyst

CRA STAFF WITH CCC RESPONSIBILITIES

CCC Director: Ann Schwartz Drobnis

Senior Program Associate for Communication: Helen Wright

Senior Program Associate for Engagement: Khari Douglas

CRA Executive Director: Andy Bernat

Additional CRA Staff:

- Peter Harsha, Director of Government Affairs
- Sandra Corbett
- Sabrina Jacob







CCC
Computing Community Consortium
Catalyst

CCC GOALS AND ACTIVITIES

ACTIVITIES

Events for the Community

- Visioning Workshops
- Blue Sky Ideas Conference Tracks

Aligning with National Priorities

- Short Reports / White Papers
- Task Forces

Website Features

- CCC Blog (http://cccblog.org)
- Great Innovative Ideas
- Catalyzing Computing Podcast

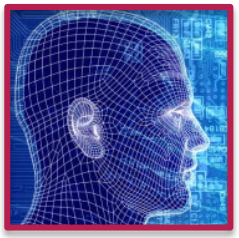
Leadership Opportunities

- Industry – Academic Collaborations
- Leadership in Science Policy Institute (LiSPI)

CCC
Computing Community Consortium
Catalyst

VISIONING: PROCESSES

- Periodic RFP for community-initiated activities
- Top-down (agency initiated)
- Bottom-up (open call)
- Sideways (council initiated, joint with other agencies,….)
- Average of seven workshops/year over the last three years



Robotic Materials

Digital Computing Beyond Moore's Law

Sociotechnical Interventions for Health Disparity Reduction

Sociotechnical Cybersecurity

Cybersecurity for Manufacturers

VISIONING ACTIVITIES

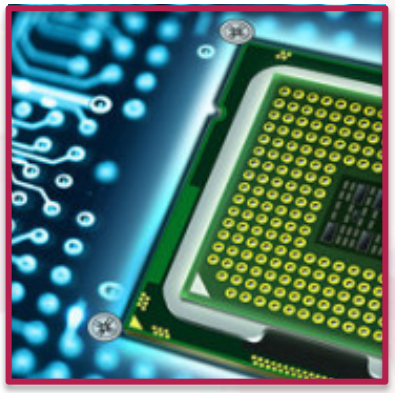
- Over 55 visioning activities in 10-year history
- Average of 8 activities per year in the last 3 years
- Research areas include:
  - AI
  - Post Quantum Cryptography
  - Health
  - Privacy by Design
  - BRAIN Initiative
  - Fairness
  - Misinformation
  - Thermodynamic Computing
- 23 workshop reports released in past 5 years
- 36 white papers released in past 5 years

Early Career Researcher Symposium	August 1-2. 2018
Leadership in Embedded Security Workshop	August 12-13, 2018
Artificial Intelligence Roadmap Workshop 1- Integrated Intelligence	November 14-15, 2018
Thermodynamic Computing	January 3-5, 2019
Artificial Intelligence Roadmap Workshop 3- Self Aware Learning	January 17-18, 2019
Identifying Research Challenges in Post Quantum Cryptography Migration and Cryptographic Agility	January 31-February 1, 2019
Code 8.7: Using Computational Science and AI to End Modern Slavery	February 19-20, 2019
Misinformation Roundtable	March 26 2019
Economics and Fairness	May 22-23, 2019

AMPLIFICATION

BRAIN Initiative launched in 2013.

CCC co-hosted the Brain Workshop with NSF in 2014.



CCC co-hosted the SA+TS workshop with SRC and NSF in 2013.

Produced Research Needs for Trustworthy, and Reliable Semiconductors Report in 2015.

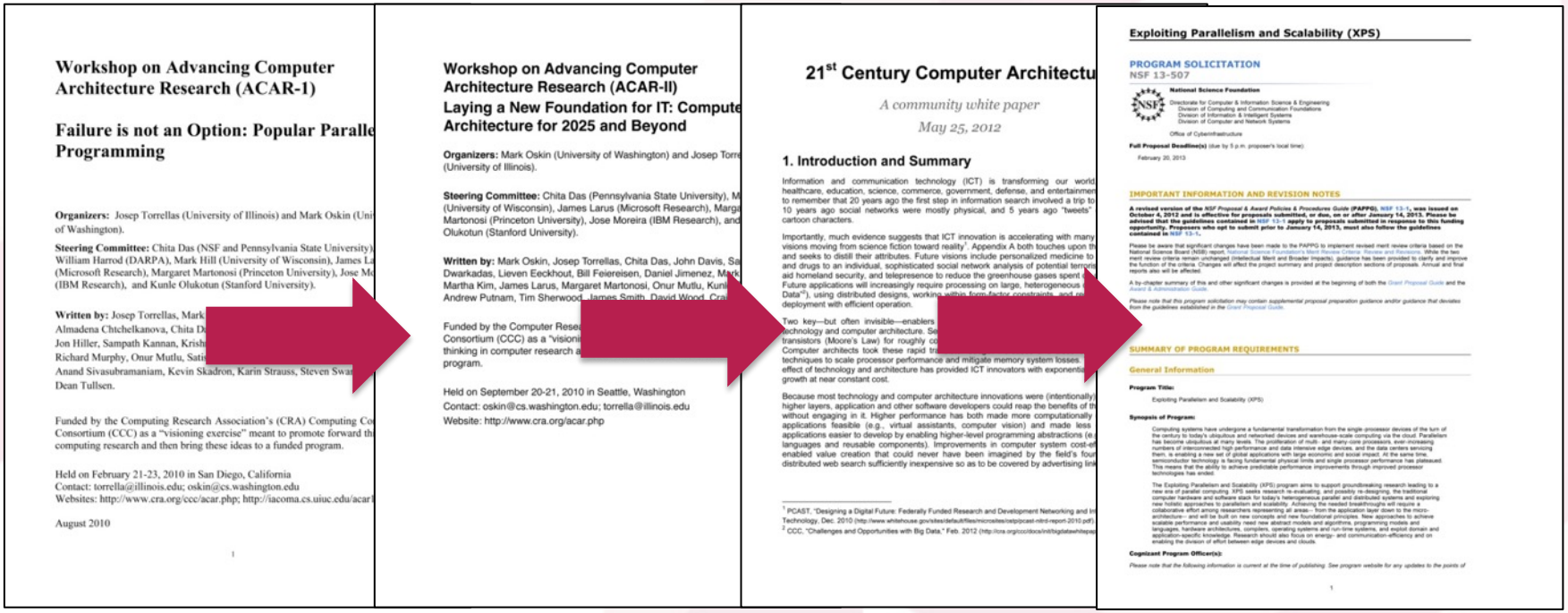
NSCI announced in July 2015.

CCC produced a series of blog posts on the topic, featuring one from Doug Burger, and the Systems and Architecture task force frequently overlaps with this topic.

Smart and Connected Health Program in NSF and NIH.

CCC has hosted several workshops on related topics, including: Aging in Place (2014), Inclusive Access (2015), and Smart and Pervasive Health (2016) and produced related reports and white papers.

IMPACT: ARCHITECTURE



Workshop on Advancing Computer Architecture Research (ACAR-1)

Failure is not an Option: Popular Paralle Programming

Organizers: Josep Torrellas (University of Illinois) and Mark Oskin (Uni of Washington).

Steering Committee: Chita Das (NSF and Pennsylvania State University) William Harrod (DARPA), Mark Hill (University of Wisconsin), James La (Microsoft Research), Margaret Martonosi (Princeton University), Jose M (IBM Research), and Kunle Olukotun (Stanford University).

Written by: Josep Torrellas, Mark Almadena Chtchelkanova, Chita D Jon Hiller, Sampath Kannan, Krish Richard Murphy, Onur Mutlu, Sati Anand Sivasubramaniam, Kevin Skadron, Karin Strauss, Steven Swa Dean Tullsen.

Funded by the Computing Research Association's (CRA) Computing Co Consortium (CCC) as a "visioning exercise" meant to promote forward th computing research and then bring these ideas to a funded program.

Held on February 21-23, 2010 in San Diego, California
Contact: torrella@illinois.edu; oskin@cs.washington.edu
Websites: http://www.cra.org/ccc/acar.php; http://iacoma.cs.uiuc.edu/acar

August 2010

Workshop on Advancing Computer Architecture Research (ACAR-II)
Laying a New Foundation for IT: Compute Architecture for 2025 and Beyond

Organizers: Mark Oskin (University of Washington) and Josep Torr (University of Illinois).

Steering Committee: Chita Das (Pennsylvania State University), M (University of Wisconsin), James Larus (Microsoft Research), Marga Martonosi (Princeton University), Jose Moreira (IBM Research), and Olukotun (Stanford University).

Written by: Mark Oskin, Josep Torrellas, Chita Das, John Davis, Sa Dwarkadas, Lieven Eeckhout, Bill Feiereisen, Daniel Jimenez, Mark Martha Kim, James Larus, Margaret Martonosi, Onur Mutlu, Kuni Andrew Putnam, Tim Sherwood, James Smith, David Wood, Cra

Funded by the Computer Rese Consortium (CCC) as a "visioni thinking in computer research a program.

Held on September 20-21, 2010 in Seattle, Washington
Contact: oskin@cs.washington.edu; torrella@illinois.edu
Website: http://www.cra.org/acar.php

21st Century Computer Architectu

A community white paper
May 25, 2012

1. Introduction and Summary

Information and communication technology (ICT) is transforming our world healthcare, education, science, commerce, government, defense, and entertainmen to remember that 20 years ago the first step in information search involved a trip to 10 years ago social networks were mostly physical, and 5 years ago "tweets" cartoon characters.

Importantly, much evidence suggests that ICT innovation is accelerating with many visions moving from science fiction toward reality[1]. Appendix A both touches upon th and seeks to distill their attributes. Future visions include personalized medicine to and drugs to an individual, sophisticated social network analysis of potential terroris aid homeland security, and telepresence to reduce the greenhouse gases spent Future applications will increasingly require processing on large, heterogeneous Data"[2]), using distributed designs, working within form-factor constraints, and re deployment with efficient operation.

Two key—but often invisible—enablers technology and computer architecture. Se transistors (Moore's Law) for roughly co Computer architects took these rapid tra techniques to scale processor performance and mitigate memory system losses. effect of technology and architecture has provided ICT innovators with exponentia growth at near constant cost.

Because most technology and computer architecture innovations were (intentionally higher layers, application and other software developers could reap the benefits of th without engaging in it. Higher performance has both made more computationally applications feasible (e.g., virtual assistants, computer vision) and made less applications easier to develop by enabling higher-level programming abstractions (e. languages and reusable components). Improvements in computer system cost-ef enabled value creation that could never have been imagined by the field's four distributed web search sufficiently inexpensive so as to be covered by advertising lin

[1] PCAST, "Designing a Digital Future: Federally Funded Research and Development Networking and In Technology, Dec. 2010 (http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-nitrd-report-2010.pdf)
[2] CCC, "Challenges and Opportunities with Big Data," Feb. 2012 (http://cra.org/ccc/docs/init/bigdatawhitepap

Exploiting Parallelism and Scalability (XPS)

PROGRAM SOLICITATION
NSF 13-507

National Science Foundation

Directorate for Computer & Information Science & Engineering
Division of Computing and Communication Foundations
Division of Information & Intelligent Systems
Division of Computer and Network Systems

Office of Cyberinfrastructure

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

February 20, 2013

IMPORTANT INFORMATION AND REVISION NOTES

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), NSF 13-1, was issued on October 4, 2012 and is effective for proposals submitted, or due, on or after January 14, 2013. Please be advised that the guidelines contained in NSF 13-1 apply to proposals submitted in response to this funding opportunity. Proposers who opt to submit prior to January 14, 2013, must also follow the guidelines contained in NSF 13-1.

Please be aware that significant changes have been made to the PAPPG to implement revised merit review criteria based on the National Science Board (NSB) report, National Science Foundation's Merit Review Criteria: Review and Revisions. While the two merit review criteria remain unchanged (Intellectual Merit and Broader Impacts), guidance has been provided to clarify and improve the function of the criteria. Changes will affect the project summary and project description sections of proposals. Annual and final reports also will be affected.

A by-chapter summary of this and other significant changes is provided at the beginning of both the Grant Proposal Guide and the Award & Administration Guide.

Please note that this program solicitation may contain supplemental proposal preparation guidance and/or guidance that deviates from the guidelines established in the Grant Proposal Guide.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Exploiting Parallelism and Scalability (XPS)

Synopsis of Program:

Computing systems have undergone a fundamental transformation from the single-processor devices of the turn of the century to today's ubiquitous and networked devices and warehouse-scale computing via the cloud. Parallelism has become ubiquitous at many levels. The proliferation of multi- and many-core processors, ever-increasing numbers of interconnected high performance and data intensive edge devices, and the data centers servicing them, is enabling a new set of global applications with large economic and social impact. At the same time, semiconductor technology is facing fundamental physical limits and single processor performance has plateaued. This means that the ability to achieve predictable performance improvements through improved processor technologies has ended.

The Exploiting Parallelism and Scalability (XPS) program aims to support groundbreaking research leading to a new era of parallel computing. XPS seeks research re-evaluating and possibly re-designing, the traditional computer hardware and software stack for today's heterogeneous parallel and distributed systems and exploring new holistic approaches to parallelism and scalability. Achieving the needed breakthroughs will require a collaborative effort among researchers representing all areas – from the application layer down to the micro-architecture– and will be built on new concepts and new foundational principles. New approaches to achieve scalable performance and usability need new abstract models and algorithms, programming models and languages, hardware architectures, compilers, operating systems and run-time systems, and exploit domain and application-specific knowledge. Research should also focus on energy- and communication-efficiency and on enabling the division of effort between edge devices and clouds.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of

2010 2010 2012 2013

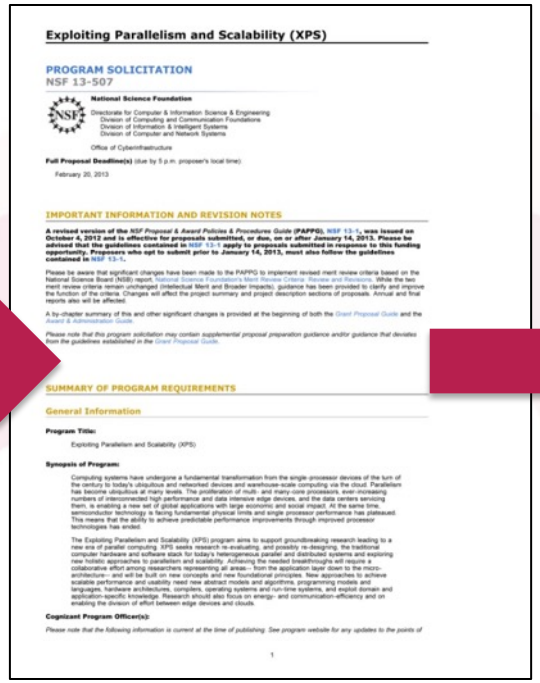
Josep Torrellas
UIUC

Mark Oskin
Washington

Mark Hill
Wisconsin

CCC
Computing Community Consortium
Catalyst

IMPACT: ARCHITECTURE



Exploiting Parallelism and Scalability (XPS)

PROGRAM SOLICITATION
NSF 13-507

National Science Foundation

Directorate for Computer & Information Science & Engineering
Division of Computing and Communication Foundations
Division of Information & Intelligent Systems
Division of Computer and Network Systems

Office of Cyberinfrastructure

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

February 20, 2013

IMPORTANT INFORMATION AND REVISION NOTES

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), NSF 13-1, was issued on October 4, 2012 and is effective for proposals submitted, or due, on or after January 14, 2013. Please be advised that the guidelines contained in NSF 13-1 apply to proposals submitted in response to this funding opportunity. Proposers who opt to submit prior to January 14, 2013, must also follow the guidelines contained in NSF 13-1.

Please be aware that significant changes have been made to the PAPPG to implement revised merit review criteria based on the National Science Board (NSB) report, National Science Foundation's Merit Review Criteria: Review and Revisions. While the two merit review criteria remain unchanged (Intellectual Merit and Broader Impacts), guidance has been provided to clarify and improve the function of the criteria. Changes will affect the project summary and project description sections of proposals. Annual and final reports also will be affected.

A by-chapter summary of this and other significant changes is provided at the beginning of both the Grant Proposal Guide and the Award & Administration Guide.

Please note that this program solicitation may contain supplemental proposal preparation guidance and/or guidance that deviates from the guidelines established in the Grant Proposal Guide.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Exploiting Parallelism and Scalability (XPS)

Synopsis of Program:

Computing systems have undergone a fundamental transformation from the single-processor devices of the turn of the century to today's ubiquitous and networked devices and warehouse-scale computing via the cloud. Parallelism has become ubiquitous at many levels. The proliferation of multi- and many-core processors, ever-increasing numbers of interconnected high performance and data intensive edge devices, and the data centers servicing them, is enabling a new set of global applications with large economic and social impact. At the same time, semiconductor technology is facing fundamental physical limits and single processor performance has plateaued. This means that the ability to achieve predictable performance improvements through improved processor technologies has ended.

The Exploiting Parallelism and Scalability (XPS) program aims to support groundbreaking research leading to a new era of parallel computing. XPS seeks research re-evaluating, and possibly re-designing, the traditional computer hardware and software stack for today's heterogeneous parallel and distributed systems and exploring new holistic approaches to parallelism and scalability. Achieving the needed breakthroughs will require a collaborative effort among researchers representing all areas -- from the application layer down to the micro-architecture -- and will be built on new concepts and new foundational principles. New approaches to achieve scalable performance and usability need new abstract models and algorithms, programming models and languages, hardware architectures, compilers, operating systems and run-time systems, and exploit domain and application-specific knowledge. Research should also focus on energy- and communication-efficiency and on enabling the division of effort between edge devices and clouds.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of

1

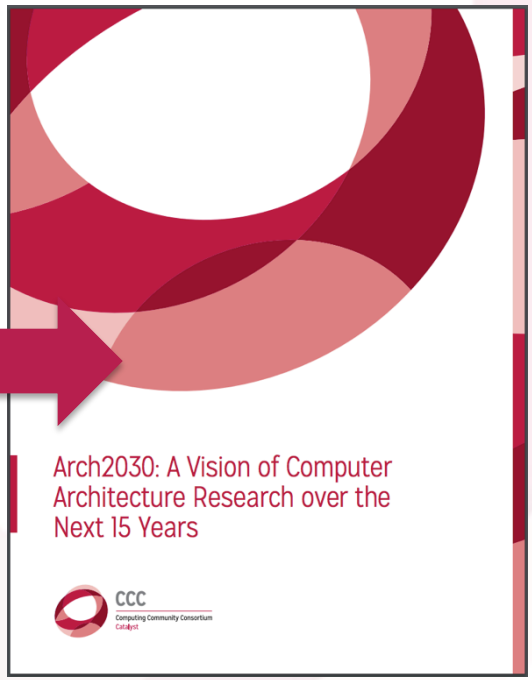
2013

Architecture 2030 Workshop @ ISCA 2016

CCC report out: Read the final report here.

Video recordings: Watch the video recordings here.

2016



2016

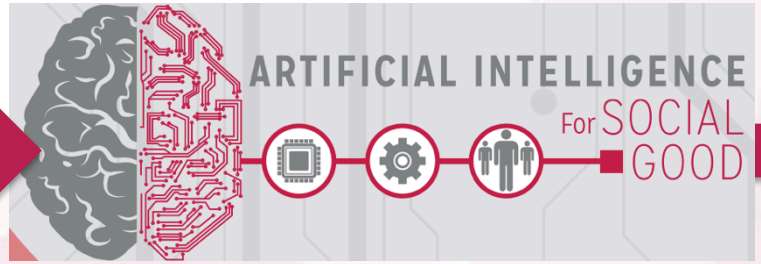
Luis Ceze
Washington

Tom Wenisch
Michigan

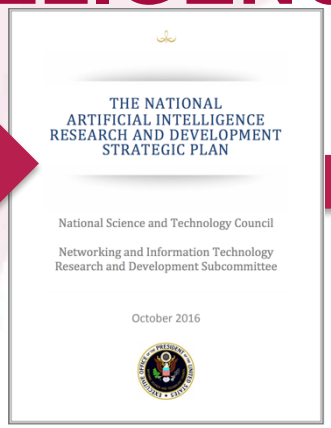
Mark Hill
Wisconsin

IMPACT: ARTIFICIAL INTELLIGENCE

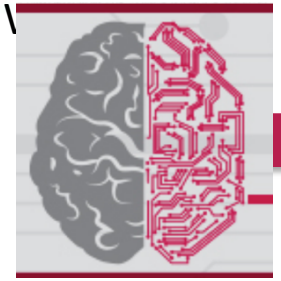
White House announces interest in AI, asks CCC to lead 1 of 4 workshops



Symposium for 400 people June, 2016



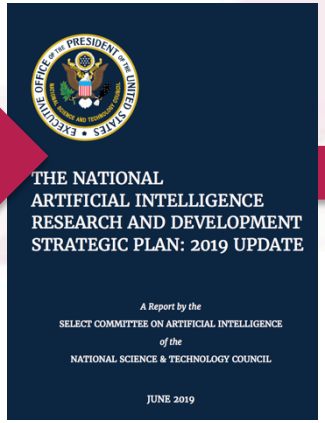
Report Released Spring, 2017



CCC launches AI Roadmap with 3 Community Workshops Fall, 2018

Several DC Meetings

Draft Report Released, Soliciting Community Input



CCC
Computing Community Consortium
Catalyst

ROADMAP: RESEARCH PRIORITIES

Research Priorities

Integrated Intelligence

- Science of integrated intelligence
- Contextualized AI
- Open knowledge repositories
- Understanding human intelligence

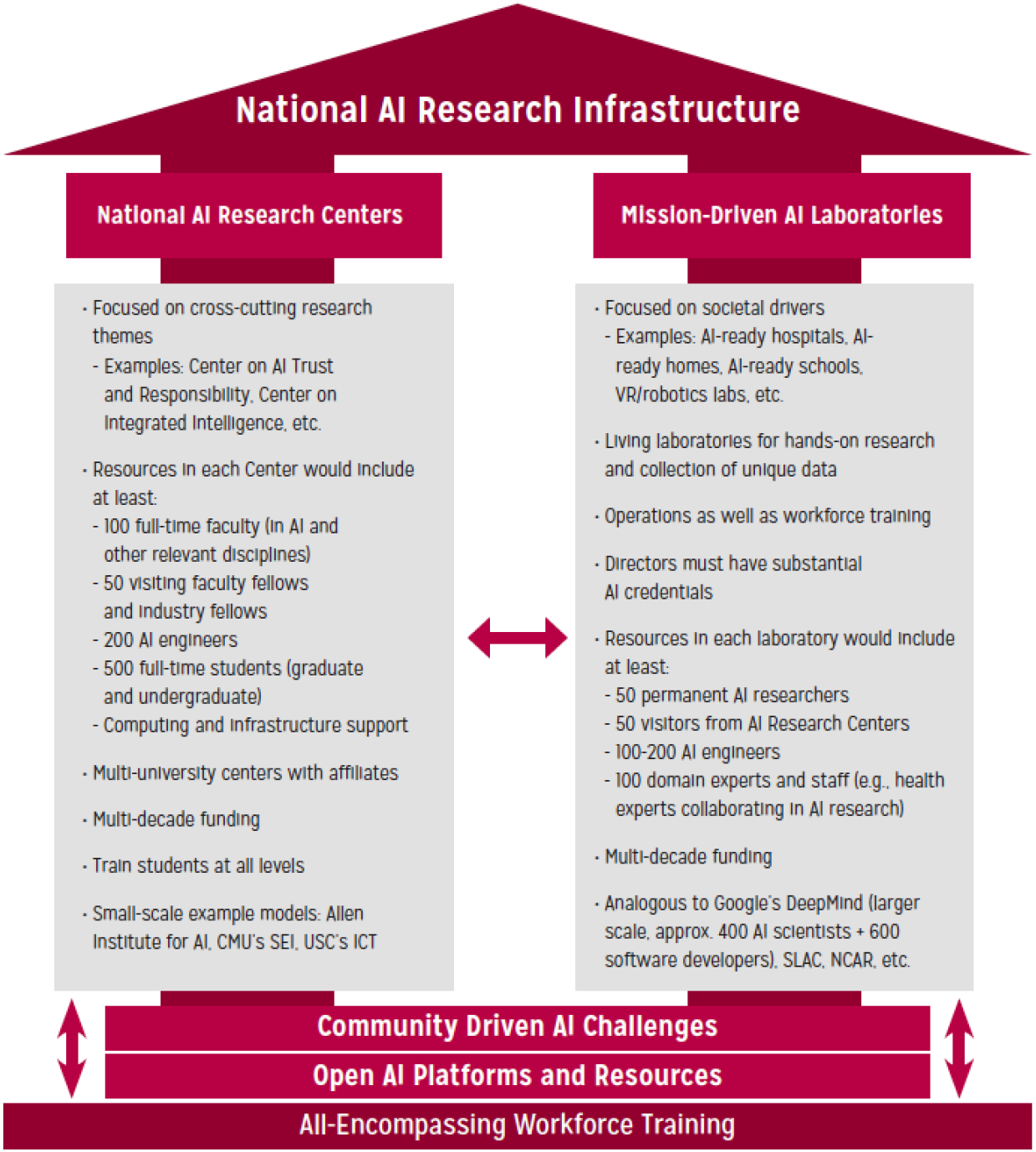
Meaningful Interaction

- Collaboration
- Trust and responsibility
- Diversity of interaction channels
- Improving online interaction

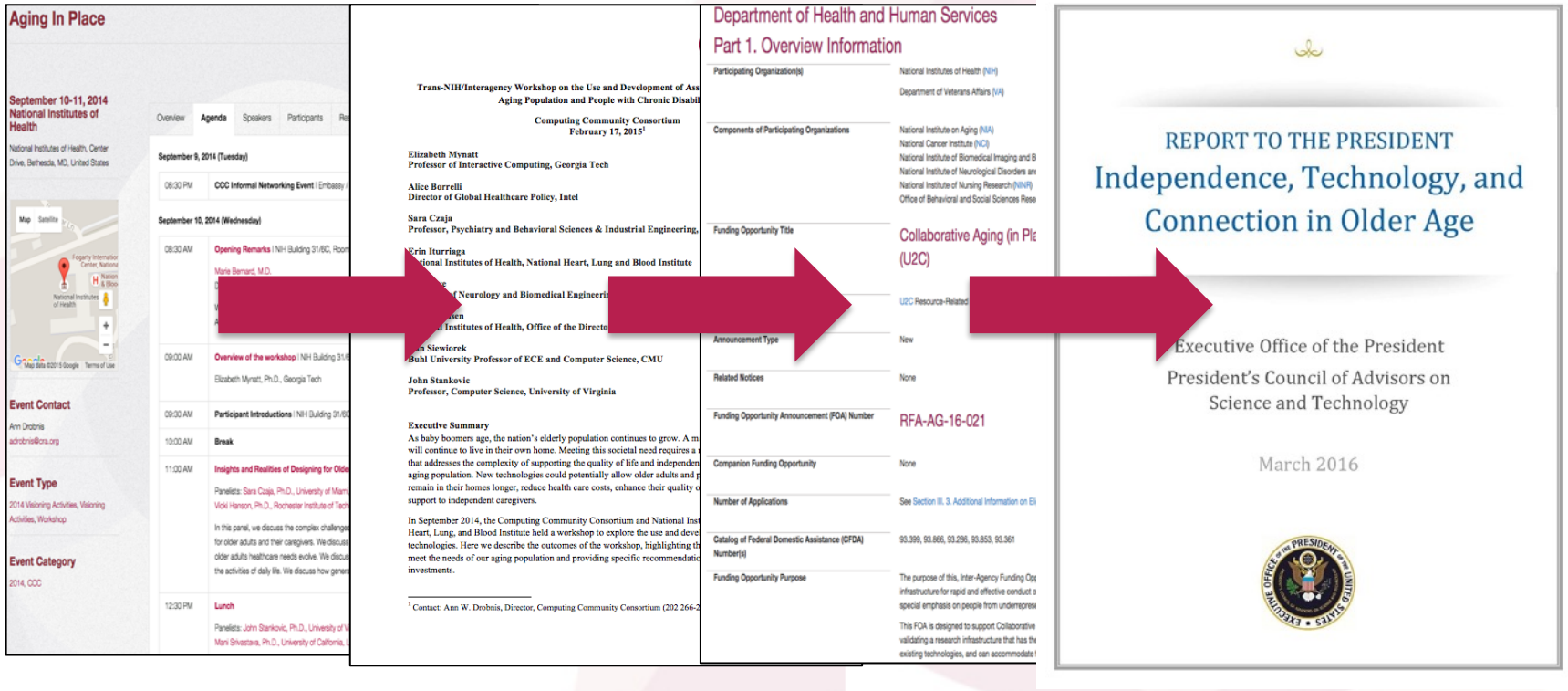
Self-Aware Learning

- Robust and trustworthy learning
- Deeper learning for challenging tasks
- Integrating symbolic and numeric representations
- Learning in integrated AI/robotic systems

CCC
Computing Community Consortium
Catalyst


National AI Research Infrastructure
National AI Research Centers
• Focused on cross-cutting research themes
- Examples: Center on AI Trust and Responsibility, Center on Integrated Intelligence, etc.
• Resources in each Center would include at least:
- 100 full-time faculty (in AI and other relevant disciplines)
- 50 visiting faculty fellows and industry fellows
- 200 AI engineers
- 500 full-time students (graduate and undergraduate)
- Computing and infrastructure support
• Multi-university centers with affiliates
• Multi-decade funding
• Train students at all levels
• Small-scale example models: Allen Institute for AI, CMU's SEI, USC's ICT
Mission-Driven AI Laboratories
• Focused on societal drivers
- Examples: AI-ready hospitals, AI-ready homes, AI-ready schools, VR/robotics labs, etc.
• Living laboratories for hands-on research and collection of unique data
• Operations as well as workforce training
• Directors must have substantial AI credentials
• Resources in each laboratory would include at least:
- 50 permanent AI researchers
- 50 visitors from AI Research Centers
- 100-200 AI engineers
- 100 domain experts and staff (e.g., health experts collaborating in AI research)
• Multi-decade funding
• Analogous to Google's DeepMind (larger scale, approx. 400 AI scientists + 600 software developers), SLAC, NCAR, etc.
Community Driven AI Challenges
Open AI Platforms and Resources
All-Encompassing Workforce Training

IMPACT: AGING IN PLACE



Joint NIH/CCC Meeting September 2014

Produced Workshop Report February 2015

NIH released new RFP informed by AIP Workshop October 2015

PCAST Report March 2016

CCC
Computing Community Consortium
Catalyst

BLUE SKY

Goal - Help conferences reach out beyond the usual research papers. Papers are open-ended and possibly "outrageous" or "wacky."

- 18 different tracks at 12 different conferences in last 5 years
- On average, 13 papers submitted per track at a conference
- Winners are asked to submit Great Innovative Ideas

Past CCC Chair Gregory Hager with AAAI-16 Blue Sky award winner Francesca Rossi

CCC
Computing Community Consortium
Catalyst

METHODS OF COMMUNICATING

- Workshop Reports
- White Papers
  - CCC works with the community to produce timely white papers that inform policymakers about pressing issues and national priorities
- CCC Blog
  - Provides a continuous stream of information about advances in computing research
  - Opportunities for community to get involved
- Catalyzing Computing Podcast
  - The CCC's official podcast, "Catalyzing Computing," features interviews with researchers and policy makers about their background and experiences in the computing community. The podcast also offers recaps of visioning workshops and other events hosted by the CCC
- Great Innovative Ideas
  - A way to showcase the exciting new research and ideas generated by the computing community
- Special Events
  - CCC Symposium
  - CRA Snowbird

Computing Research 2017

AI for Social Good 2016

NURTURING NEXT GENERATION OF LEADERS

Grow leadership and community capacity to engage in and respond to national science policy needs and identify new directions for computing research.

Leadership in Science Policy Institute

- Educates and trains computing researchers on how science policy in the U.S. is formulated and how to advocate for computing research
- Co-sponsored by CRA's Government Affairs Committee

Industry – Academic Collaborations

- CCC collaborated with Big Data Regional Hubs
- Activities to enhance the research of early career faculty

Postdoc Best Practices

- Program to study institutional support structures for postdocs
- 3 programs: University of Washington, NY ASCENT, Arizona

Computing Innovation Fellows (CIFellows) Project

- Rapidly created the CI Fellows program to preserve human capital when faculty positions became scarce with the financial crisis

CCC WORKING GROUPS & TASK FORCES

Goal is for CCC to be **engaged in ongoing activities** around these topics, to **identify needs and opportunities** in each topic area, and to **take actions** (generating white papers, convening a workshop, publicizing information, etc.) that have the possibility of "moving the needle" for these topics.

Task forces, which include Council members and others from the community, meet on a regular basis and report at every Council meeting.

These provide a key mechanism to enable parallelism and expand CCC's reach

- Pioneered a few years ago
- Includes some non-CCC members
- Five task forces in 2017-18 ➔ six task forces + two working groups in 2018-19 ➔ five task forces + two working groups in 2019-20

ARTIFICIAL INTELLIGENCE WORKING GROUP

Current Members:

Liz Bradley
University of Colorado, Boulder

David Parkes
Harvard University

Maria Gini
University of Minnesota

Chad Jenkins
University of Michigan

Melanie Mitchell
Portland State University

Context:

- The Artificial Intelligence Working Group has led the CCC's effort to generate an AI Roadmap

Recent Activities:

- **WS #1-Integrated Intelligence**
  Marie desJardins (Simmons) & Ken Forbus (Northwestern University)
- **WS #2- Interaction**
  Kathy McKeown (Columbia University) & Dan Weld (University of Washington)
- **WS #3- Learning and Robotics**
  Fei Fei Li (Stanford) & Tom Dietterich (Oregon State)

INDUSTRY COLLABORATION WORKING GROUP

Current Members:

Greg Morrisett
Cornell University

Ben Zorn
Microsoft Research

Shwetak Patel
University of Washington

Jennifer Rexford
Princeton University

Context:

- University/industry interaction is crucial, CCC round-table in 2015
- Questions: Is this interaction changing? If so, how?
- Approach: Consider one vertical closely this year – Autonomous Vehicles / Transportation
- Learn & move forward next year

Recent Activities:

- Ongoing discussions with academics, industry (nuTonomy), DoT FHWA

White Papers:

- *Evolving Academia/Industry Relations in Computing Research*

CYBERSECURITY AND CYBERCRIME TASK FORCE

Current Members:

Elisa Bertino
Purdue University

Nadya Bliss
Arizona State University

Daniel Lopresti
Lehigh University

Keith Marzullo
University of Maryland

White Papers:

- *Safety, Security, and Privacy Threats Posed by Accelerating Trends in IoT*
- *System Computing Challenges in the IoT*

Recent Activities:

- *Sociotechnical Cybersecurity workshop series (2016-2017)*
- *Leadership in Embedded Security Workshop (2018)*

Upcoming Activities:

- Developing partnerships for UN workshops and followup on application of AI to fight against human trafficking (CCC, UNU Delta 8.7, Alan Turning Institute, Tech Against Trafficking)

HEALTH AND COMPUTING TASK FORCE

Current Members:

Maria Gini
University of Minnesota

Shwetak Patel
University of Washington

Katie Siek
Indiana University

Recent Activities:

- Response to NITRD draft Federal Health Information Technology Research and Development Strategic Framework

Upcoming Activities:

- Computational Support for Substance Use Disorder Prevention, Detection, Treatment, and Recovery

White Papers:

- *Information Technology Research Challenges for Healthcare: From Discovery to Delivery*
- *Trans-NIH/Interagency Workshop on the Use and Development of Assistive Technology for the Aging Population and People with Chronic Disabilities*

FADE (FAIRNESS, ACCOUNTABILITY, DISINFORMATION, AND EXPLAINABILITY) TASK FORCE

Current Members:

Nadya Bliss
Arizona State University

Liz Bradley
University of Colorado, Boulder

Juliana Freire
New York University

Chad Jenkins
University of Michigan

Ronitt Rubinfeld
MIT

David Parkes
Harvard University

Suresh Venkatasubramanian
University of Utah

Recent Activities:

- Misinformation Roundtable
- Economics and Fairness workshop

Upcoming Activities:

- Charting the research agenda for this area

White Papers:

- *Big Data, Data Science, and Civil Rights*
- *Privacy-Preserving Data Analysis for the Federal Statistical Agencies*
- *Towards a Privacy Research Roadmap for the Computing Community*

FUTURE OF THE RESEARCH ENTERPRISE TASK FORCE

Current Members:

Tom Conte
Georgia Tech

Keith Marzullo
University of Maryland

Suresh Venkatasubramanian
University of Utah

Ben Zorn
Microsoft Research

Recent Activities:

- Brand new task force

SYSTEMS AND ARCHITECTURE TASK FORCE

Current Members:

Sujata Banerjee
VMware

Tom Conte
Georgia Tech

Ian Foster
Argonne National Lab

Mark Hill
University of Wisconsin, Madison

Jennifer Rexford
Princeton University

Recent Activities:

- Thermodynamic Computing workshop: January, 2019
- Post-Quantum Cryptography workshop: January, 2019

Upcoming Activities:

- Wide-Area Data Analytics workshop

White Papers:

- *The Opportunities and Challenges for Next Generation Computing*
- *Challenges to Keeping the Computing Industry Centered in the US*

HOW CAN YOU GET INVOLVED?

- Reach out to the CCC with your ideas!
  - Email CCC Director Ann Schwartz Drobnis (adrobnis@cra.org)
  - Come to a CCC visioning workshop
    (See upcoming events: https://cra.org/ccc/events/)
- Tell your community about CCC!
  - RFP posted at the beginning of each year, please share
  - Have a colleague who you would recommend for a visioning workshop? Let Ann know!
  - Read (or contribute to) the CCC blog (http://www.cccblog.org)
  - Listen to (or appear as a guest on) the CCC podcast (https://cra.org/ccc/podcast/)

CCC
Computing Community Consortium
Catalyst

COMPUTING COMMUNITY CONSORTIUM

The **mission** of Computing Research Association's Computing Community Consortium (CCC) is to **catalyze** the computing research community and **enable** the pursuit of innovative, high-impact research.

Who

- Council – 20 members
- Chair, VC, & Director
- CCC/CRA Staff

Inputs: Bottom-up, Internal, & Top-Down

What:

- Workshops & Conf. Blue Sky Tracks
- Whitepapers & Social Media
- Reports Out (esp. to government)
- Biannual Symposium in DC

Talent Development

- Early Career Workshops & Participation
- Council Membership
- Leadership w/ Gov't (LISPI)