Computing Community Consortium
Council Meeting
November 17, 2014
Hyatt Arlington

Attending: Mark Hill, Shashi Shekhar, Ross Whitaker, Susan Graham, Peter Harsha, Jennifer Rexford, Lorenzo Alvisi, Joe Evans, Vasant Honavar, Susan Davidson, Greg Hager, Ann Drobnis, Debra Richardson, Andy Bernat, Liz Bradley, Ben Zorn, Bob Sproull, Beth Mynatt, Daniela Rus, Klara Nahrstedt, Limor Fix, Helen Vasaly, and Shar Steed.

Guests: Debbie Lockard, Irene Qualters, Suzi Iacono, and Randal Bryant.

Introductions
- CCC Chair's welcome remarks
  - General Updates
  - Laying out the plans for the day
  - List of activities that we have done this fall
    - Uncertainty in Computation
    - Aging in Place
    - BRAIN
      - December 4th-5th
      - Will be live streaming some of the plenary talks
      - Live tweeting #cccbrain
  - Visions 2025 Bridge Workshop with Extensible Distributed Systems
    - January 21-23rd
    - IEEE rebooting computing discussion
    - Invited Jim Kurose to come
  - Privacy by Design
    - Three workshops
    - First one in January in California
  - Visioning Proposals
    - Just received our first proposal
    - More will be coming
- Presentations/ Publications
  - CCC Activities
    - NSF, DOT, DARPA, NIH meetings tomorrow (11/18)
  - Human Computation Publication
    - First one came out last week
    - [Click here](#) for the publication
  - ACM SIGs Conference
    - Beth presented quick overview of CCC
- CCC nomination process for next summer's CCC council rotation
  - Will get the call out early December
- Working Groups

- Big Data (Vasant, Liz, Sue Davidson)- Would like to have a data sharing workshop. Microsoft has valuable data that could be useful to the community.
- Education (Ran, Ann, Debra, Tal, Helen)- Looking to create a group of people who can write a white paper on CS Education Research. If anyone knows of anyone who would be good to write a white paper, let this group know. Goal is to make a case for why CS Education Research is important. Huge need and lack of understanding. Topics such as gender and diversity will be included. Do the students that you are getting in your classes, have the background to succeed?
- Industry and Academia (Greg, Ross, Jen, Limor)- We don't understand the interaction very well. Would like to do some information gathering, and put together a survey. What are your interactions with academia? What is the range of interactions? Then ask the same complimentary questions to industry about academia
- Health IT (Beth, Greg, Vasant, Claire, Tal)- Haven't had a discussion yet. Had the Aging in Place workshop in September. Will meet with NIH tomorrow (11/18). Should have an ACM and MLM discussion, because nothing in the computing health world shows up in the pubmed articles.
- High performance Community (Susan, Vasant, Sue Davidson, Mark Hill, Klara, Joe)- Could possibly put together a workshop for data intensive sciences. Bringing interdisciplinary teams together to focus the groups.

Discussion with Irene Qualters, Division Director for ACI
- ACI is focused on accelerated discovery and innovation across all disciplines
- ACI has been upgrading campuses across the country
    - To increase capability to support tomorrow's workforce
- This year ACI has a multi-institution focus
    - Building from software elements-> (integration)-> software framework-> (integration)-> software institutes
- What is the goal of the software institutes?
    - Create tools that are accessible for scientists outside of CS?
        - Hopefully, but not sure. CS and Eng are not able to construct the tools needed for those individuals.
- FY 2014/ FY 2013 were highly interdisciplinary in regards to funding from different directorates
    - For example: DATAONE
- Any collaboration with other US Agencies?
        - Yes, close to 40% are funded by other agencies (NIH for example)
- Data preservation issues?

- o ACI does not worry about preservation of data
- National Strategic Computing Initiative
  - o Ensuring technology based hardware and software to allow the research community to make advances
  - o Has established staying power
    - ▪ Building capacity on the whole not just on top
    - ▪ Learning and workforce development

Prepare for Discussions with Dr. Suzi Iacono, Acting NSF CISE AD
- Just had the CISE AC meeting and Committee of Visitors (COV) Meeting in early November
- Questions for Acting NSF CISE AD
  - o Is reorganizing the divisions still on the table?
  - o What are the priorities for CISE right now?
  - o What do you think about the growth of faculty in CS?

Discussion with Dr. Suzi Iacono, Acting NSF CISE AD
- Dr. Jim Kurose will be new CISE AD in January
- General updated on political landscape in CISE
- Two new DDs
  - o Lynn Parker, University of Tennessee
    - ▪ Robotics field
  - o Keith Marsulo, second term DD for CNS
- First ever Senior Advisor for Science in CISE, Chaitan Baru
  - o Goal is to focus on data and have an expert
    - ▪ Big interdisciplinary projects like NEON
  - o Develop a strategic plan
    - ▪ Scientific discovery
    - ▪ Economic productivity and profitability
    - ▪ Achievement of national priorities
      - • Data is important to clean energy, healthcare, national security, etc.
- Four pronged framework:
  - o Foundational research
    - ▪ Big data solicitation
  - o Data infrastructure
    - ▪ Building block program
    - ▪ Trying to figure out what the other directorates need right now
  - o Education and workforce development (priority goal for NSF)
    - ▪ Increasing the number of scientists
    - ▪ Focus on graduate students
  - o Community building
    - ▪ Reuse
    - ▪ Best practices
- NSF Research Traineeship (NRT) announcements

- o CCC could help bringing together the graduate students from the NRT announcements and get people aware of the program
- Partnerships
  - o Important in time of flat budgets
  - o CCC could be a great help in the partnerships
    - ▪ Work with industry and non-profits
- SAVI
  - o Way of letting two institutions in two different counties work together for two years
- Has NSF done any sort of data gathering?
  - o Yes, via survey but not through report server because their annual reports are not that good
- US Ignite solicitation on the street
- Big Data
  - o Request for information (RFI) out for regional and big data hubs
  - o Research agenda for privacy
    - ▪ Coordinate with Keith Marsulo
- Peter Harsha Update
  - o CR for 11 bills
  - o Possibility for sequestration?
    - ▪ Part of the landscape
    - ▪ Will only get worst for the next two years
  - o NSF might do better than other agencies

Discussion with Dr. Randy Bryant, OSTP
- Real novel ideas have come out of industry
- Whole domain is still not very well understood
- Strategic computing is the big outlook
- Big machines and big data centers
  - o Biggest program in big data center is power
- Super computer track
  - o 20+ years
  - o Independent treads
- For national security we need a lot of defense
  - o Infrastructure that runs the power grid
- Chip industry- Intel, Micron, Global Foundries, Samsung
- Parallel computing programming building machines was big topic
  - o But it has end
  - o Now it will be the need to reach our goals
  - o Most faculty grew up not doing parallel programming, so they don't teach it
- Why is there a desire to have big data and big computation?
  - o Training of deep networks
  - o Super computer style work load
  - o Should do the training sequentially

- o Need to develop new programming language
- Moving data will become the new power consumption
  - o Demands a much more localized computation
  - o People have been saying that for 20 years but haven't done it since its so hard
- CCC needs to be the bridge between hardware and software
  - o Power is the barrier
- Robotics
  - o NRI is going well
  - o Successful initiative
  - o DARPA has joined in
  - o 82 projects have been funded, large participation
- Ebola Workshops
  - o Four workshops all over country
  - o Joint 11 presentations across WebEX
  - o Humans as robots
    - ▪ Have headphones that would tell a medical worker instructions from a doctor
- Cyber-physical systems
  - o Strategic decisions to focus on smart cities
  - o Global Cities Challenge
    - ▪ DCL from NSF to all PIs if they want to participate in the global cities challenge
- Data privacy
  - o Request for information, got 23 responses
  - o Planning a workshop in Feb, subcommittee of the NITRD
  - o Technology people to inform policy makers and policy people
  - o Homomorphic encryption
    - ▪ Does not solve all the problems
- Big Data
  - o Gap between those who understand big data and those who really apply it
  - o People who are educated in data science are in such high demand
- Data science for social good
  - o Summer program
  - o City projects for data science
  - o Bringing in students

Council discussions on HPC
- Why is machine learning is a big problem?
- What are the computer science research problems?
  - o Technical challenges
- High performance computing working group will get together and have a response by January

- Good to have our response to the [CSTB interim report](#) in the books, but we should also do it for ourselves
    - Use the questions as you want and feel free to stretch them
- Visioning proposal for cyberinfrastructure
    - Correlate the data and look for linkage
    - Material science and semiconductor industry
        - How do you evolve the data?
        - How does it get correlated?
        - We want to have discussion on this workshop, plus correlation
- "Clash of the titans" workshop that Randy proposed
    - Big data community verses the HPC community
- Is there something that CCC should be doing in that community?
    - Not sure
- Two takeaways
    - Start crafting a response to CSTB study
    - Start crafting a workshop, it is timely so it would be great to be doing in the next few months

Council discussions on White Papers
- Four parts (Ben, Beth, Greg, Bob)
    - Needs to be stitched together
- When technical, social, and physical world collide you get these unique issues
    - Unable to ignore the complexity
- Setting the intellectual goal is separate
- The vision is going to change.
    - Industry is going to go much faster than we could ever do
- There seems to possibly be a whole subset of problems
    - For example: healthcare, blood sugar is life critical for some people but advisory for others
    - Being able to explain to people the interaction
- Human robotic interaction
    - No one is looking at social robotics (bathroom is not the same as bedroom or kitchen)
- Next step should be to develop obstruction
- As academics we could develop this
    - How do you abstract the performance?
    - Build a huge system that could be composed
- Moving from transistors to registers
    - To have an impact down the road
    - Great examples in the opposite direction
        - Can do great human interaction by looking at what people do in their homes
- Intelligence assistants
    - Stick together so that there is a combined intelligence
- Does this sound like extensible distributed systems?

- Yes, there is an Interface that exists
- How do we move forward with this?
  - Healthcare domain
  - Transportation
  - In home
- Might be good to survey agencies (NIH for example)
  - Building a smart home
    - Can technology recognize predefined and human behaviors?
  - The funding agencies might not know how to frame the challenges
- Take this white paper and drive it with a little more concrete uses
  - Finish it up as a piece that AIP and Distributed Systems can use