Mentoring & Managing Students

Chris Johnson

University of Utah

and

Beth Mynatt

Georgia Tech

CRA

Computing Research Association

Chris

Chris Johnson

Director, Scientific Computing and Imaging Institute, University of Utah (200 people)

Director, NIH Center for Integrative Biomedical Computing
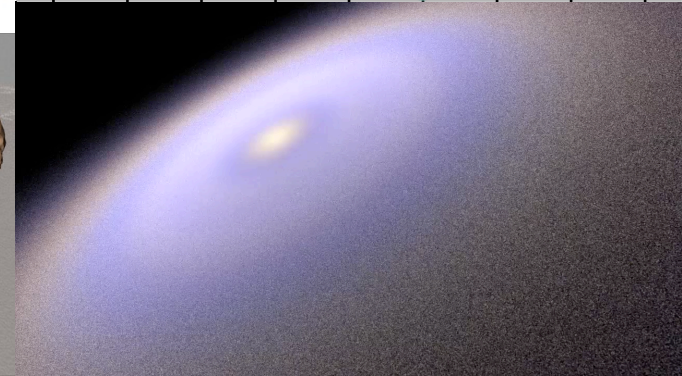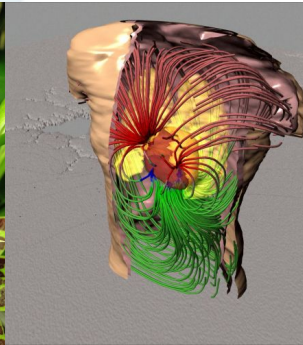
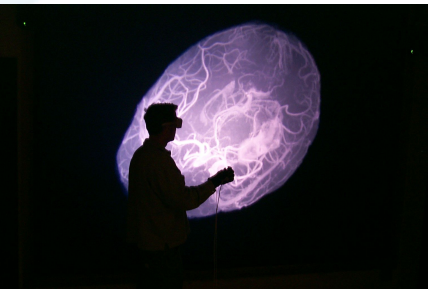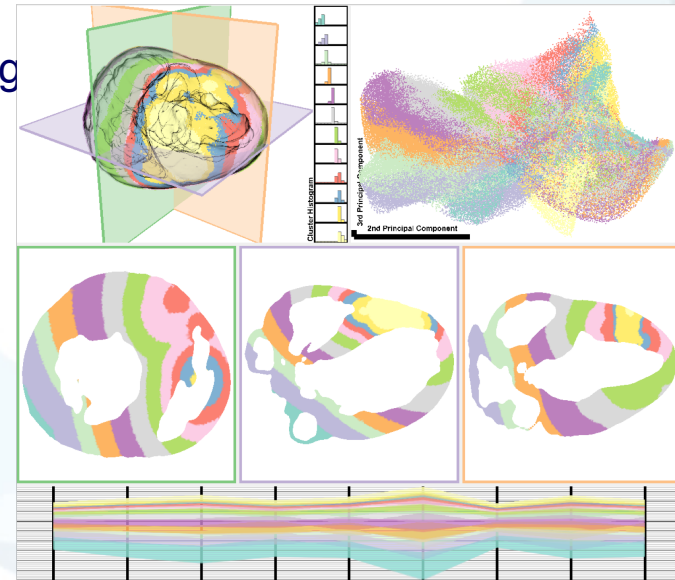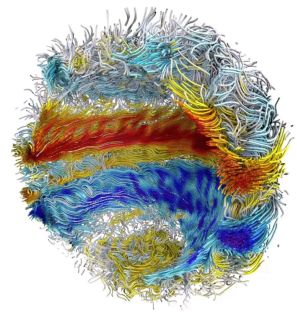Distinguished Professor of Computer Science

Adjunct Professor of Physics and Bioengineering

Research

Scientific Computing

Image Analysis

Scientific Visualization

Recruiting, Mentoring & Promoting Students

- <u>Recruit good students</u>
    - Be proactive – don't depend only on those students who apply
    - Use your research network to identify top students (B.S. and M.S.)
    - Contact top students and encourage them to apply
    - Make RA offers to top applicants

- <u>Mentoring your students</u>
    - Make sure expectations are clear, require regular (weekly) meetings/reports, and spend time early on to get going.
    - Use internships and short visits to help them find/refine research problems and build a network as grad students (but not too many internships)
    - Have students give research presentations on a regular basis
    - Make sure you are in sync with your student's career goals

- <u>Promoting your students (current & alumni)</u>
    - Nominate for awards and advertise successes of students & alumni
    - Send your students to conferences. Introduce them to senior faculty. Teach them how to network.

CRA
Computing Research Association

Three S's of Mentoring & Management

- **Style**
  - No Asshole Rule
  - Lead by example
  - Be flexible and keep learning. The size and make up of your group will probably change: Small research group to large research group to Center to Institute.

- **Standards**
  - Make expectations clear from the outset and remind students periodically
  - Stress quality and point out exemplars

- **Structure**
  - Group structure: Postdocs and senior grads can help with first year grads.
  - Set goals and milestones and review regularly. Paper deadlines are good milestones, but make sure students see the big picture and understand longer term goals

CRA

Computing Research Association

BETH

BETH MYNATT

- PhD, Georgia Tech 1995
- Industry experience: Xerox PARC 1995-1998
- Distinguished Professor, Georgia Tech (14 PhD students)
  - Director, HCI MS program, 2000-2002
  - Founding Director, HCC PhD program, 2002-2005
  - Director GVU Center, 2005-2010
  - Founding Director, GT Institute for People and Technology, 2011-present
- Chair, Computing Community Consortium (CCC),
  - 2016-2018 (June)
- Research
  - Assistive Technology
  - Ubiquitous Computing -> Everyday Computing
    - Application: "Aging in Place", MCI
  - Personal Health Informatics
    - Application: Chronic Disease Mgmt, Wellness
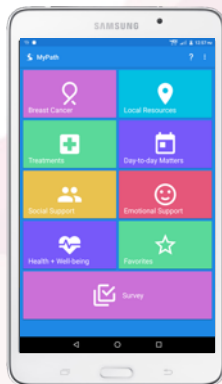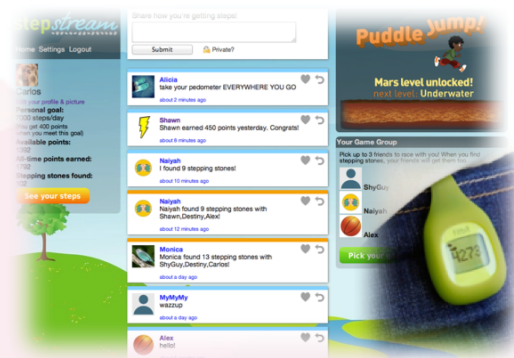
COMPUTING COMMUNITY CONSORTIUM

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

Bring the computing research community together to envision audacious research challenges.

Communicate these challenges and opportunities to the broader national community.

Facilitate investment in these research challenges **by key stakeholders**.

Inculcate values of **leadership** and service by the computing research community.

Inform and influence early career researchers to engage in these community-led research challenges.

RECRUITING, MENTORING & PROMOTING STUDENTS

Recruiting

– Strategies vary depending on institution (commitment / resources). Talk to your colleagues.

– Know how to read files (scores, letters).

– Make personal contact with students before committing.

– Establish pipeline.

– Your students are the **best** recruiters for your group!

Research and Mentoring

– Selecting research focus and problems

  • Must match my interests and fit my research agenda

  • Provide foundation for independence

– Every student is different, you have to figure out what works for each, be adaptable

– Provide opportunities (e.g. teaching, conferences, internships) to round out their experience

Promoting

– Discuss career goals with your students early on and regularly.

– Their goals with evolve. Try to plan a path for them that will be flexible

– Encourage them to get to know other faculty and students in other research groups

– More opportunities / visibility / awards

CCC
Computing Community Consortium
Catalyst

THREE S'S OF MENTORING & MANAGEMENT

Style

- Collaborative
- Focus on the big picture vision at the outset and then coaching.
- Establish a group identity; hold retreats, reunions.
- Demonstrate work/life balance. Promote diversity.
- Have fun; enjoy the good parts.

Standards

- Regular engagement with flexibility on medium
- Manage quality of papers, presentations, systems, and field sites
- Ethics

Structure

- Fluid, collaborative
- Lab-based; Senior students mentor junior students; Advise MS and undergraduate students
- Weekly touchpoints
- Lab goals

CCC
Computing Community Consortium
Catalyst

THREE S'S OF MANAGEMENT & MENTORING

- Take 5 minutes and write down your three S's of Management & Mentoring:

  – What is your *Style*?

  – What are your *Standards*?

  – What is your *Structure*?

CCC
Computing Community Consortium
Catalyst

THREE S'S OF MANAGEMENT & MENTORING

- Now, pair up and take 6 minutes (3 minutes each) and explain your three S's of Management & Mentoring to your partner

  - What is your *Style*?

  - What are your *Standards*?

  - What is your *Structure*?

CCC
Computing Community Consortium
Catalyst

SOME TIPS AND Q& A

Chris's Tips and Lessons Learned

- Each student is unique!
  - Some students are fantastic from the beginning, others take more time to get going
  - No matter how hard you try, some students will not make it. It is in the best interest of both you and the student to be honest about it not working.

- Postdocs are more expensive, but can help with research and mentoring (Mario Capecchi story)

- Remember: Students are the reason there are universities and there is nothing more rewarding than watching the successes of your students. Your Ph.D. students become your academic children, and then you get academic grandchildren, and then academic great grandchildren. It becomes an amazing academic family!

CRA
Computing Research Association

BETH'S TIPS

- Don't take on too many students
  - Especially early on!
  - Build out research lab with ugrads and MS students too.

- Each student is different. Be flexible with your strategies

- Work to create a healthy group,
  sum is greater than the parts
  - They learn from each other just as much as learning from you

- Have clear expectations for meetings / deliverables

- Value your students
  - Working with students is one of the
    best parts about being a faculty member!

CCC
Computing Community Consortium
Catalyst

Q&A TIME
POTENTIAL QUESTIONS: ADVISING CHALLENGES

- Balancing training students & publishing for tenure
- Dealing with poor writing without completely rewriting the paper yourself
- Slow progress
- Advising students with low confidence
- Ethics
- When & how to cut a student loose
- …

CCC
Computing Community Consortium
Catalyst

THANKS!