

Why CS Departments Should Embrace Computing Education Research

Speakers:

Diana Franklin, University of Chicago

Mark Guzdial, Georgia Tech

Scott Klemmer, UC San Diego

Andy Ko, University of Washington

Ben Shapiro, University of Colorado Boulder

Moderator: Ran Libeskind-Hadas, Harvey Mudd College



Andy Ko, University of Washington

Associate Professor, The Information School + CS

Ph.D. in HCI from Carnegie Mellon in 2008

Focus: interactions with code, spanning HCI, software engineering, and computing education.

Story: Michael Lee and Gidget



helpgidget.org

Mark Guzdial, Georgia Tech

Professor, School of Interactive Computing, Georgia Tech.

PhD in Ed and CSE, U. Michigan, 1993

Current project: Ebooks for learning CS Principles.

- Funded by NSF CE21 (for teachers), IUSE (for students)
- Pubs: *CS Ed Journal*, SIGCSE (for practitioners), Cog Sci
- Human-Centered Computing PhD Student: Briana Morrison
 - ICER 2015 “Chairs Award” for best paper
 - Joining U. Nebraska-Omaha CS dept in Fall



Ben Shapiro, University of Colorado Boulder

Assistant Professor, Computer Science

Based in ATLAS Institute.

By courtesy: School of Education & Department of Information Science.

PhD in Learning Sciences, Northwestern, 2009

Current projects: BlockyTalky (Distributed Computing for Kids);

DataTip (Data science for urban youth and their families)

- Funded by NSF CAREER and Cyberlearning programs
- Pubs in Int. Conf. of Learning Sciences, ICER, NIME, CACM, Science.

Diana Franklin, U. Chicago

Director of Computer Science Education Research, UChicago STEM Ed
Ph.D. in CS (computer architecture) from UC Davis, 2002

Explores CS learning of diverse students in elementary school

Funding: NSF CE21

Pubs: ICER, SIGCSE, Science & Children

KaleidosCode group:

Interdisciplinary: Science Ed + CS researchers

PhD Math Ed grad is postDoc at CU Boulder

MS CS grad is developer for Apple for accessible interfaces



Scott Klemmer, UC San Diego

What are the benefits to a CS Department?

Scott Klemmer and Andy Ko

With whom in my department (and beyond) can CER faculty collaborate?

Programming Languages

HCI

Software Engineering

Machine Learning

Graphics

Education

Music

Veterinary Medicine

What do other STEM fields do?

Mark Guzdial

Compare and contrast the roles of CER research faculty and teaching faculty

Biggest factors: Time, resources, and performance evaluation

Time barriers:

- 2x-3x teaching load, 2x service load

- High-load intro courses, no grad courses

Resource barriers:

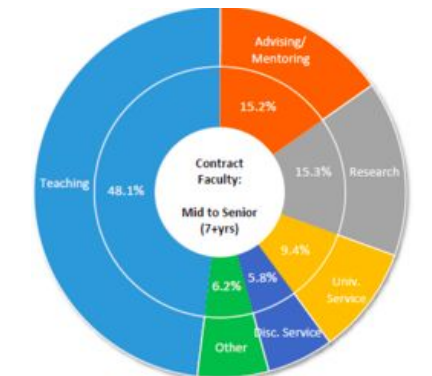
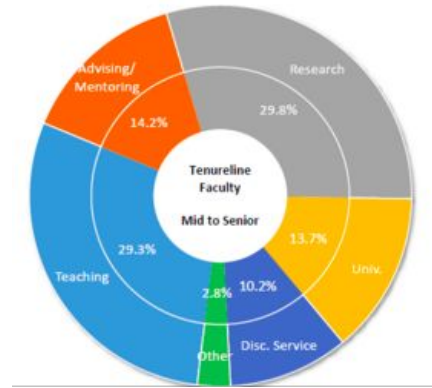
- Don't choose grad student admits

- No grad class to recruit / train grad students

- Mentoring / letters less valuable with less respected title

Performance evaluation:

- Advancement via teaching evals, not grants or pubs



Some possible questions for discussion...

- Who is producing PhD's in CER and what does a good program look like?
- How big does a CER group need to be have critical mass?
- Why do this in a CS department as opposed to in Ed/Psychology/Cognitive Science?
- What are the necessary organizational structures to support computing education research? CS? I-Schools? Traditional CS PhD programs or something else?
- Where is the biggest bang for the buck in CER: research on elementary school, secondary school, or undergraduate education?
- What's the interaction between CER and federal/state/local education policy? Should we expect our CER faculty to get involved in education policy issues?