

Best Time Ever to Teach/Learn CS

Maria M. Klawe
President
Harvey Mudd College

outline

- Why it's the best time ever
- The paradox
 - Decrease of students in CS courses
- What we can do about it

Why it's the best time ever

- CS concepts and technology affecting every area of society
- More high-paid and interesting jobs for people with CS knowledge than any other area
- Many new approaches to teaching/learning CS that appeal to broader range of students and teachers

Best time ever...

- CS concepts and technology in society
 - Delaying onset of Alzheimers
 - Social computing, e.g. Facebook
 - Understanding evolution
 - Rural education, agriculture, medicine in developing world

Example: Digital Study Hall

- Randy Wang's idea for education in the developing world – networks with long latency but huge bandwidth
- Hub and spoke schools in India, Bangladesh
- Digital green, healthcare

Best time ever...

- Career opportunities
 - Can combine computing with almost every other interest (travel, art, politics, languages, theatre, etc.)
 - jobs are much more than coding, e.g. problem-solving, user design, teamwork, communication
 - Highest paid of all science and engineering grads

Best time ever...

- New approaches to teaching/learning
 - Media computing (Mark Guzdial)
 - Problem-solving (Harvey Mudd College)
 - Applications in biology, psychology and fine arts (UBC, Anne Condon)
 - Storytelling (Alice, CMU)

The paradox

- Steadily decreasing enrollments in high school CS courses, especially
 - females
 - AP CS

Why enrollments are decreasing in high school CS

- Misleading perception of CS and IT
- Ambitious students want to load up on AP courses
- Few colleges programs require AP CS, and some don't give credit
- AP CS too focused on programming

Perceptions of CS

- Myth about IT jobs disappearing
 - Dot-com crash, media emphasis on outsourcing
- Image of computing jobs
 - No life, no people interactions, boring
- Image of CS courses being all about programming

What colleges and industry can do

- Offer accredited professional development courses for teachers to learn new approaches
- Help lobby superintendents, principals, politicians about the need for more CS courses
- Value CS courses in admissions
- Provide summer internships for students who have taken CS courses

What teachers can do

- Participate in professional development to learn new approaches
- Invite local CS people from colleges and industry to talk to your classes, the principal, parent groups
- Lobby to teach engaging CS courses for grades 9 and 10

What can WE do to change the image...

- Have IT companies use their advertising \$\$\$ to “brand CS careers”
- Get a CS version of “Numbers”
- Get a female idol as the CS spokesperson
- Get a hot book written about people in CS careers and publicized on talk shows.
 - The Last Lecture by Randy Pausch
- A “CS is cool” month
- Use social networking sites somehow...

Resources

- www.anitaborg.org
- www.NCWIT.org
- CRA-W
- ACM-W

Questions and Comments
