



# Using AI to Motivate Greater Participation in Computer Science

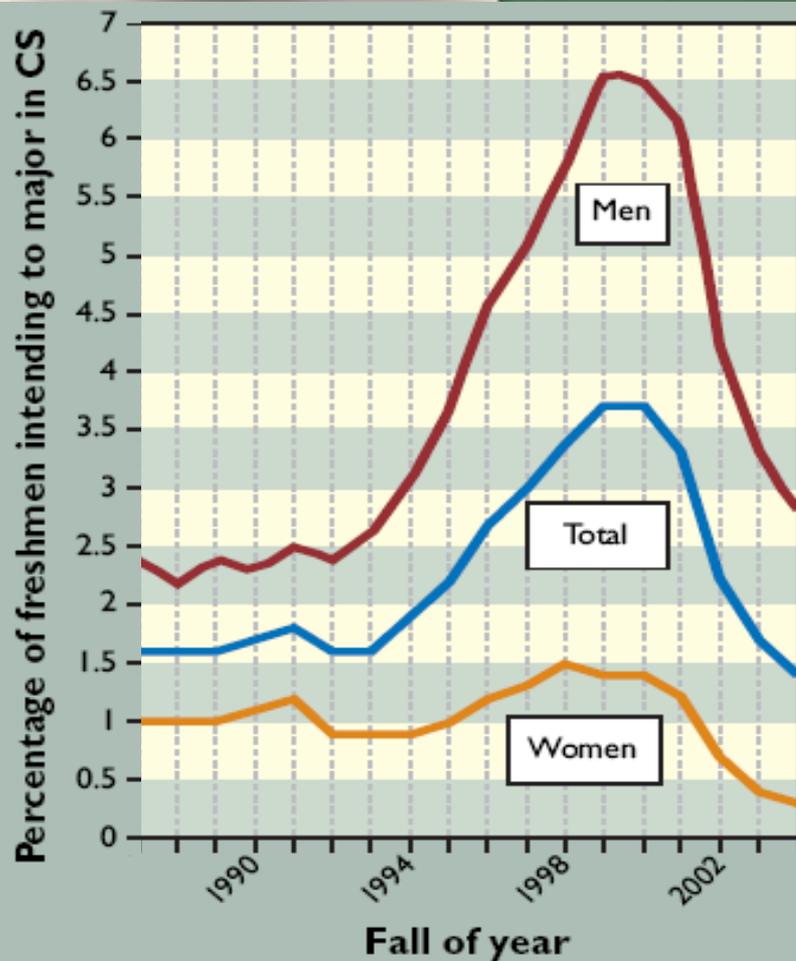


Plenary Speaker:  
Marie desJardins

Symposium Chair:  
Mehran Sahami



# The Most Famous Chart in CS Education





# Symposium Topic: Interpretations



## Recruitment



### Short-term interest



"Computers are cool! I can use them!"



### Long-term interest



"Computers are cool! I can make my own applications!"



## Retention



"Computers are cool! I can create new technologies!"



# Meta-Themes

- 📁 Make computing more fun
  - 📁 Encourage creativity
  - 📁 Make computing more relevant (real-world applications, social relevance)
  - 📁 Allow students to "show off" (contests, exhibitions)
  - 📁 Work in groups
  - 📁 Integrate ideas across curriculum
  - 📁 Encourage self-directedness, extra credit
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# Robotics Themes

 Using robotics to...

 ...attract interest to computing

 ...increase participation in early CS classes

 ...design an entire curriculum

 Many individual cool projects





# Non-Robotics Themes

- 📖 AI-centered CS 0 / CS 1 / curriculum
    - 📖 Variations: robotics-centered, games-centered, computational economics-centered...
    - 📖 Nifty individual assignments
  - 📖 "Tracks" within curricula
  - 📖 Integration of research and education
  - 📖 Interdisciplinary courses and curricula
  - 📖 Outreach programs
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# Invited Talks

 Illah Nourbakhsh:

 Robotics applications to increase interest in CS

 Peter Norvig:

 Use AI as testbeds for exploration

 Vincent Conitzer:

 Computational economics in CS education

 Phil Levis:

 Teaching with sensor nodes





# Nifty Robots

Dance

QuickTime™ and a Motion JPEG OpenDML decompressor are needed to see this picture.



QuickTime™ and a decompressor are needed to see this picture.

# Other Nifty Stuff



QuickTime™ and a decompressor are needed to see this picture.



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# Issues: Real-World Connections

-  How do we bring **real-world applications** into the curriculum?
  -  ...while maintaining focus on the **fundamentals**?
  -  How do we help students to perceive computing as **relevant and socially meaningful**?
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## Issues: Risks

-  Do we risk creating an **overly "technology user"** view of computing?
  -  Do we risk **focusing too narrowly** on robotics or AI?
  -  How do we move from short-term "this is cool" to **long-term interest in applying and creating new technology?**
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# Issues: Pragmatics

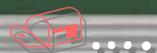
 Dealing with **resistance to change**, resistance to AI/robotics focus

 Dealing with **resource limitations**

 Insufficient or undermotivated faculty

 Insufficient equipment or funding

 Insufficient TA resources for grading and reinforcement





# Summary

-  AI and robotics have enormous potential to excite and motivate students
  -  Lots of faculty enthusiasm for improving curriculum and education
  -  Lots of great ideas and willingness to share them!
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Chicago  
July 13-17

- AI Education Colloquium
- AI Video Competition: Educational Track

Teaching AI? Robotics? Learning?

**Submit!** (videos: 4/4; colloquium: 4/7)