10,000 New Computer Science Teachers by 2015

How can we help?

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Need

- “Innovations in computing and more broadly, information technology (IT), drive our economy, underlie many new advances in science and engineering, and contribute to our national security. Projected job growth in IT is very strong.”

NSF Computing Education for the 21st Century (CE21) call for proposals, http://www.nsf.gov/pubs/2010/nsf10619/nsf10619.htm

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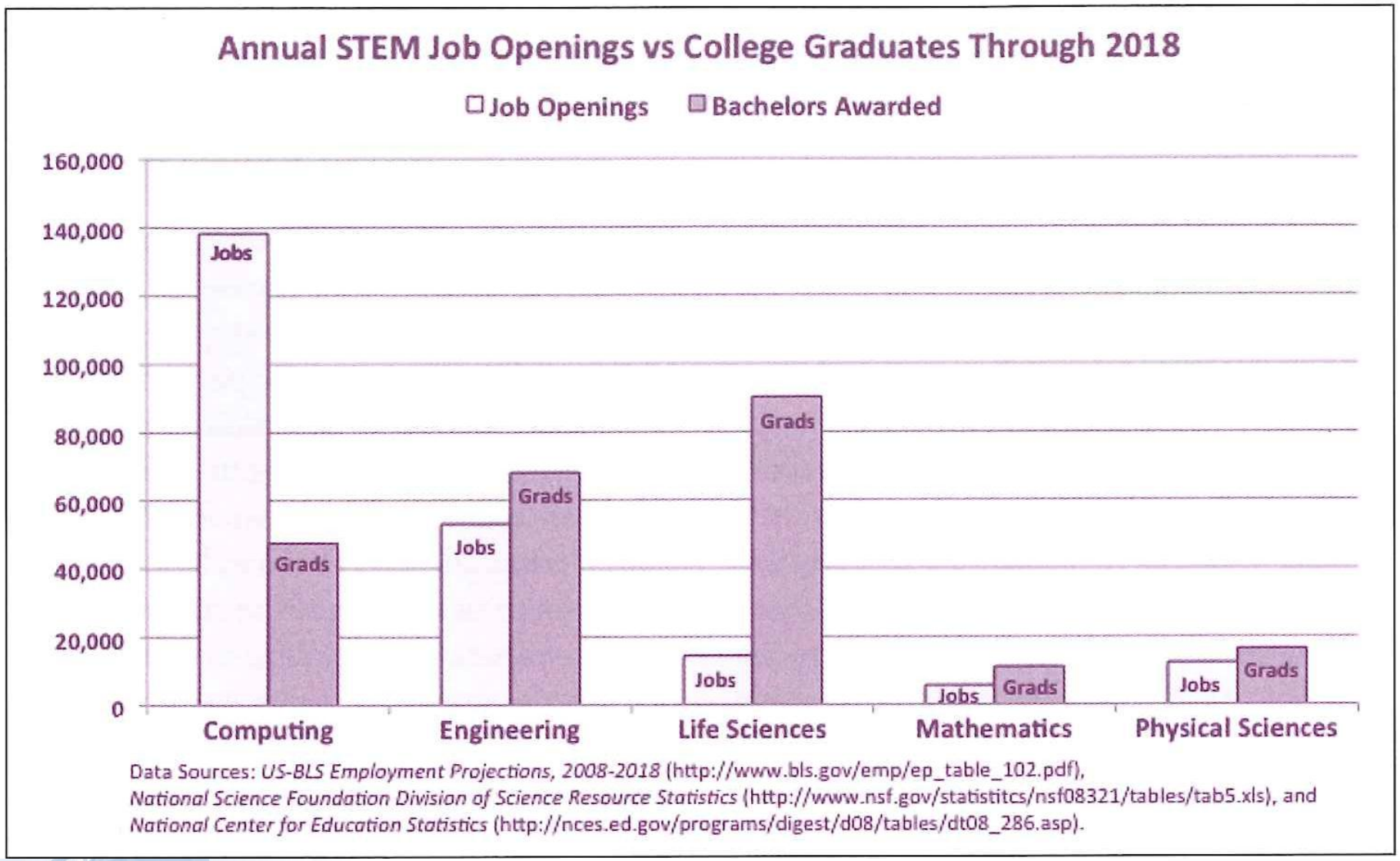
Problem

- “Despite these very positive indicators, student interest in computing has declined dramatically over the last decade.
  - For example, the percentage of college freshmen indicating an intent to major in computing has declined overall by 70% in the last decade; for women, the decline was 80% (HERI, 2000-2009).
  - Recent data show that student interest in computing majors has fallen behind projected job openings by a factor of five and a half (ACT, 2010).”

- ACT: American College Testing Program (2010), *The Condition of College and Career Readiness*.
- Higher Education Research Institute (HERI), *College Freshmen Survey*, 2000-2009.



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Solution

- Computing Education for the 21st Century (CE21)
  - Increase the number and diversity of K-14 students and teachers who develop and practice computational competencies in a variety of contexts
  - Increase the number and diversity of early postsecondary students who are engaged and have the background in computing necessary to successfully pursue degrees in computing-related and computationally-intensive fields of study

http://www.nsf.gov/pubs/2010/nsf10619/nsf10619.htm

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CSU's Initiatives

- Summer Computer Camps for kids
- First Lego League Robotics
- Teacher Workshops
- Computer Science Teacher Endorsement

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Summer Computer Camps

- **Activ8 Computing Camps**
  - **Computerized Craft Building with Pico Crickets**
  - **Create your own adventure - Game and Movie making through programming with Scratch**
  - **Web Design**
  - **Web Design & Flash® Animation**
  - **Animating with Alice**
  - **Lego robots**
  - **GameMaker**
  - **3D Game Art and Design with Blender**
  - **Python Programming**

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Summer Computer Camps

- AGES: 8-11 or 11-14 or high school

- 2010: 12 camps: : 147 kids [114 boys & 33 girls]
- 2009: 15 camps: 160 kids [126 boys & 34 girls]
- 2008: 13 camps: 161 kids [119 boys & 42 girls]
- 2007: 4 camps: 75 kids [52 boys & 23 girls]
  - partial funding by GA Computes

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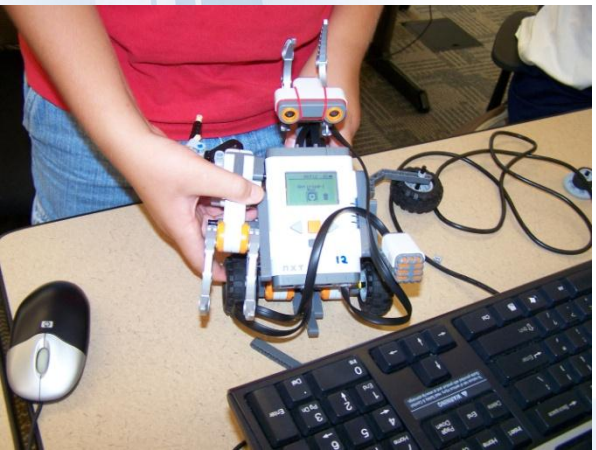
First Lego League Robotics

- Dec. 2009 – hosted 10 teams from throughout South GA
- Dec. 2010 – plan to host 18 teams



Weekend Teacher Workshops

Broadening Participation in Computer Science (BPC)
Weekend Workshop for Teachers
School of Computer Science
Columbus State University
March 20, 2010

	Topics	Facilitator
8:30-9:00	Breakfast, Registration, Pre-workshop Survey	
9:00- 9:30	Welcome & Introductions "Computing: What and Why? "	Wayne Summers
9:30-9:45	"Computer Science Unplugged"	Shamim Khan
10:00-10:15	Break	
10:15-12:15	Introduction to Programming using Scratch	Rodrigo Obando
12:15-1:15	Lunch	
1:15-1:30	"Computer Science Unplugged"	Shamim Khan
1:30-3: 00	Programming using Scratch boards	Shamim Khan
3:00 - 3:15	Break	
3:15-3:45	Introduction to Web 2.0	Rodrigo Obando
3:45-4:45	Presentation of work, discussion on lesson plans using materials covered	Rodrigo Obando Shamim Khan
4:45-5:00	Post -workshop Survey and Conclusion	

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Summer Teacher Workshops

- Scratch / CS Unplugged
- Alice / CS Unplugged
- Lego Robots / CS Unplugged
- Programming mobile devices / Web 2.0
- Lesson Plans

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Computer Science Teacher Endorsement

- There are two targets:
  - people who already have a teaching certificate, who are just looking for an add-on endorsement
  - students who are currently work on a certification in another field and want to add an endorsement (there are both undergraduate and graduate options)
- Mode of Delivery
  - the graduate classes will be offered online.
  - the pre-service undergraduate option will be taught only on campus at this time.

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Computer Science Teacher Endorsement

- Graduate endorsement
  - CPSC 6105. Fundamental Principles of Computer Science
  - CPSC 6106. Fundamentals of Computer Programming and Data Structures
  - CPSC 5135G. Programming Languages
  - CPSC 5157G. Computer Networks
  - EDUT 5125G. Methods of Teaching Computer Science
  - EDUT 5455G. Practicum in Computer Science

Aligned to the GAPSC Standards (based on ISTE Standards)

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Computer Science Teacher Endorsement

- Undergraduate endorsement
  - CPSC 1105. Introduction to Information Technology
  - CPSC 1301/1301L. Computer Science 1
  - CPSC 1302. Computer Science 2
  - CPSC 2105. Computer Organization
  - CPSC 2108. Data Structures
  - CPSC 5135G. Programming Languages
  - CPSC 5157G. Computer Networks
  - EDUT 5125U. Methods of Teaching Computer Science
  - EDUT 5455U. Practicum in Computer Science

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Computer Science Teacher Endorsement

- Assessments and Evidence for Meeting Standards
  - Content GPA (content knowledge)
  - Professional Portfolio (Field Experiences and Clinical Practice)
  - Field Experience Evaluation
  - Dispositions Evaluation
  - Graduate and Employer Surveys

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QUESTIONS?

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