

# WELCOME!

## SCS Parents/Friends Outreach Roadshow

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**School of Computer Science  
Carnegie Mellon University**

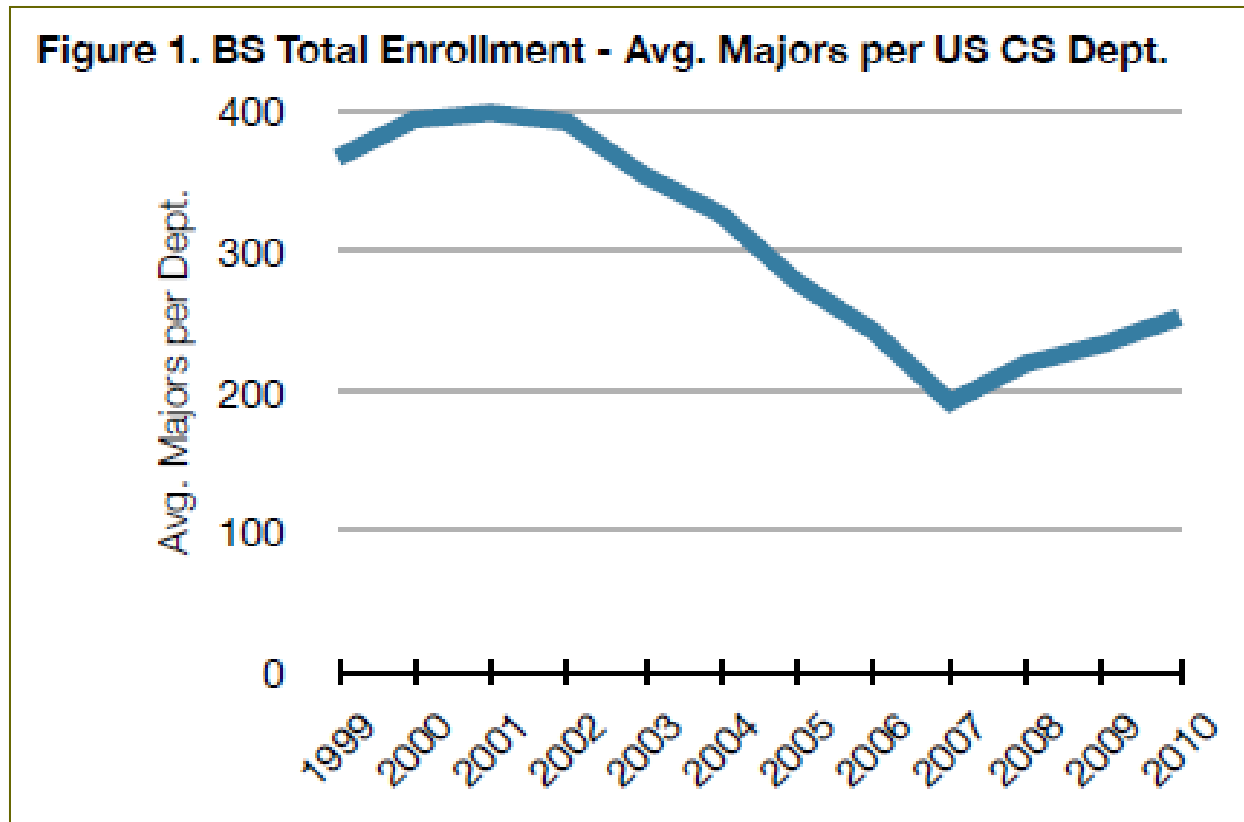
<http://women.cs.cmu.edu/>

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***Some Interesting Data....***

## Data: Bachelor's Average Enrollment in Computer Science (2011 Taulbee Report)

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**Good news ...**



***but not the whole story***



# Data: 2011 Taulbee Report (2009-2010 activity) CS Bachelor's Recipients by Gender

	CS		CE		I	Total		
Male	7,622	86.2%	1,427	89.6%	1,625	85.5%	10,674	86.6%
Female	1,216	13.8%	166	10.4%	275	14.5%	1,657	13.4%
<b>Total with Gender Data</b>	<b>8,838</b>		<b>1,593</b>		<b>1,900</b>		<b>12,331</b>	
Unknown	170		0		0		170	
<b>Total</b>	<b>9,008</b>		<b>1,593</b>		<b>1,900</b>		<b>12,501</b>	

**US Population: female 50.7%**

2010 Quick Facts <http://quickfacts.census.gov/qfd/states/00000.html>

**BUT women make up only 13.8% of students graduating with a bachelor's degree in CS.**

# 2011 Taulbee Report (2009-2010 activity)

## CS Bachelor's Recipients by Ethnicity

Table 3. Ethnicity of Bachelor's Recipients

	CS		CE		I		Total	
Nonresident Alien	584	8.4%	99	7.1%	73	4.8%	756	7.6%
American Indian or Alaska Native	27	0.4%	6	0.4%	13	0.9%	46	0.5%
Asian	1,034	14.8%	250	17.9%	173	11.4%	1,457	14.7%
Black or African-American	236	3.4%	57	4.1%	120	7.9%	413	4.2%
Native Hawaiian or Pacific Islander	20	0.3%	3	0.2%	3	0.2%	26	0.3%
White	4,650	66.5%	901	64.6%	1,024	67.2%	6,575	66.4%
Multiracial, not Hispanic	65	0.9%	13	0.9%	1	0.1%	79	0.8%
Resident Hispanic, any race	373	5.3%	65	4.7%	116	7.6%	554	5.6%
<b>Total with Ethnicity Data</b>	<b>6,989</b>		<b>1,394</b>		<b>1,523</b>		<b>9,906</b>	
Resident, race/ethnicity unknown	455		96		119		670	
Residency unknown	1,564		103		258		1,925	
<b>Total</b>	<b>9,008</b>		<b>1,593</b>		<b>1,900</b>		<b>12,501</b>	

- **US Population: Hispanic 15.4%, African Americans 12.8%,** 2010 Quick Facts <http://quickfacts.census.gov/qfd/states/00000.html>
- **BUT Hispanics make up only 5.3% of students of students graduating with a bachelor's degree in CS.**
- **And African Americans make up only 3.4% of students of students graduating with a bachelor's degree in CS.**

# Some students are missing out on opportunities in computing...

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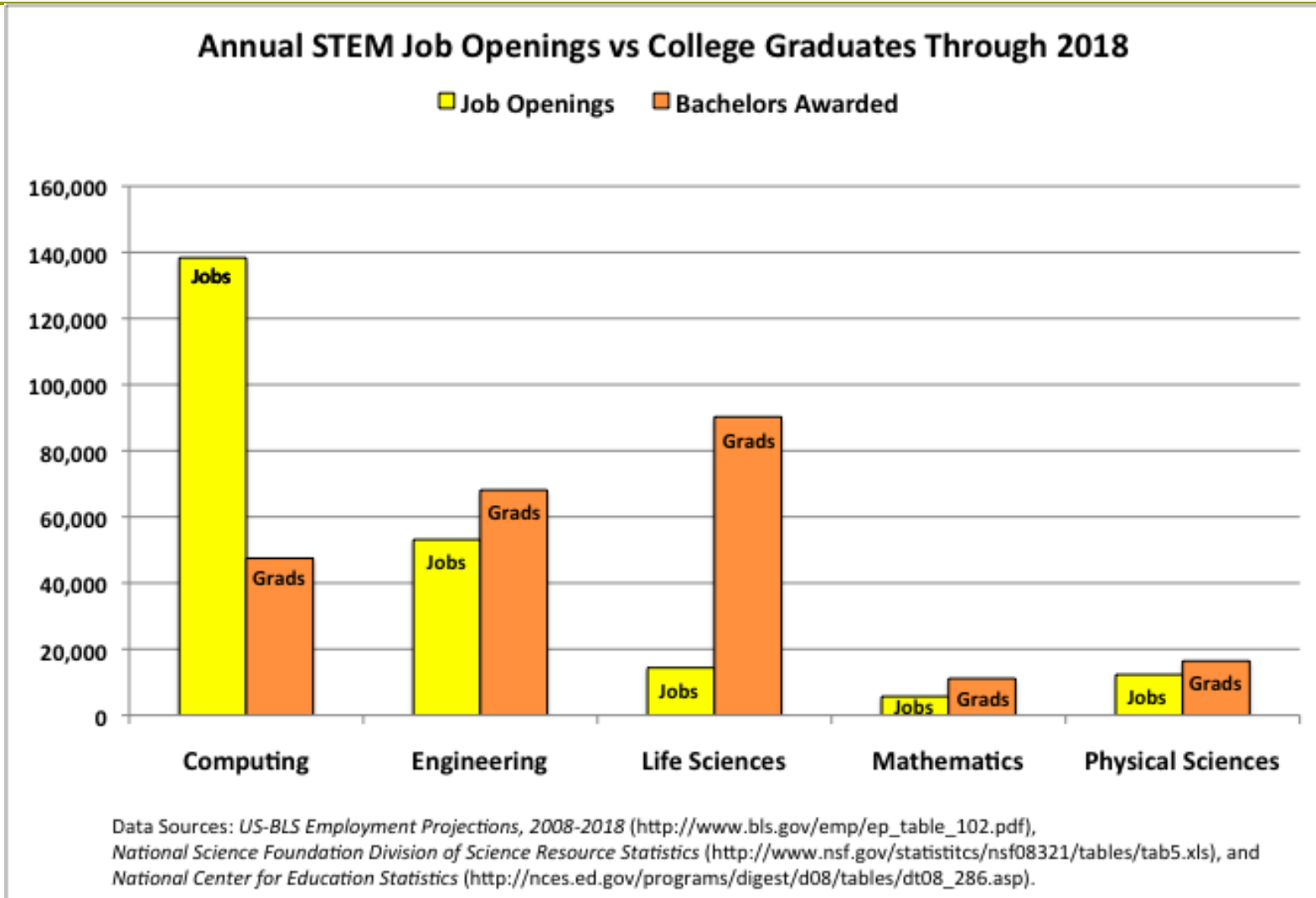
## Opportunities in Computer Science:

- ❑ Can lead to the best-rated job, and 5 of the top 10 highest paid, highest growth jobs
- ❑ Creative and exciting work which can make a difference to our world

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- ❑ Jobs in Computing show strong job growth
- ❑ Yet the USA has a looming severe shortage in college graduates

# Projected Jobs vs Projected Bachelor's Degrees through 2018



# Where the Jobs Are

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“In other words, among *all* occupations in *all* fields of science and engineering, computer science occupations are projected to account for nearly 60% of *all* job growth between now and 2018.”

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**In the mean time.....**

# K-12 Computer Science Education

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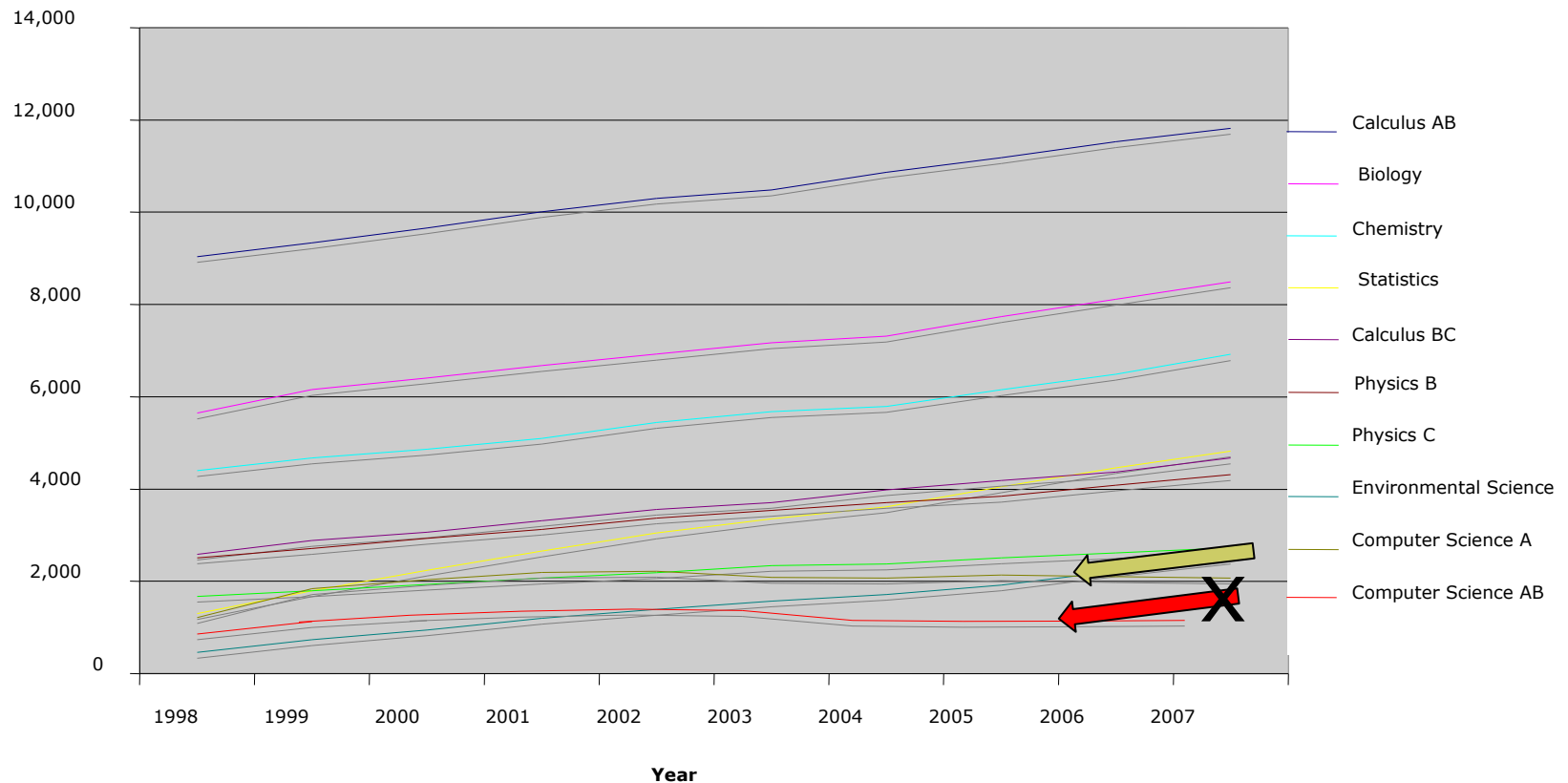
“Pennsylvania has no certification or endorsement for computer science, Georgia has a voluntary endorsement for computer science, and Texas has a required certification in computer science”

Computer Science Teachers' Association (CSTA) Report, 2008  
<http://csta.acm.org/Communications/sub/DocsPresentationFiles/CertificationFinal.pdf>

# Number of Schools Offering AP Courses Related to STEM, 1998-2007

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Number of Schools Offering AP Courses



# Low Access to CS AP Continues...

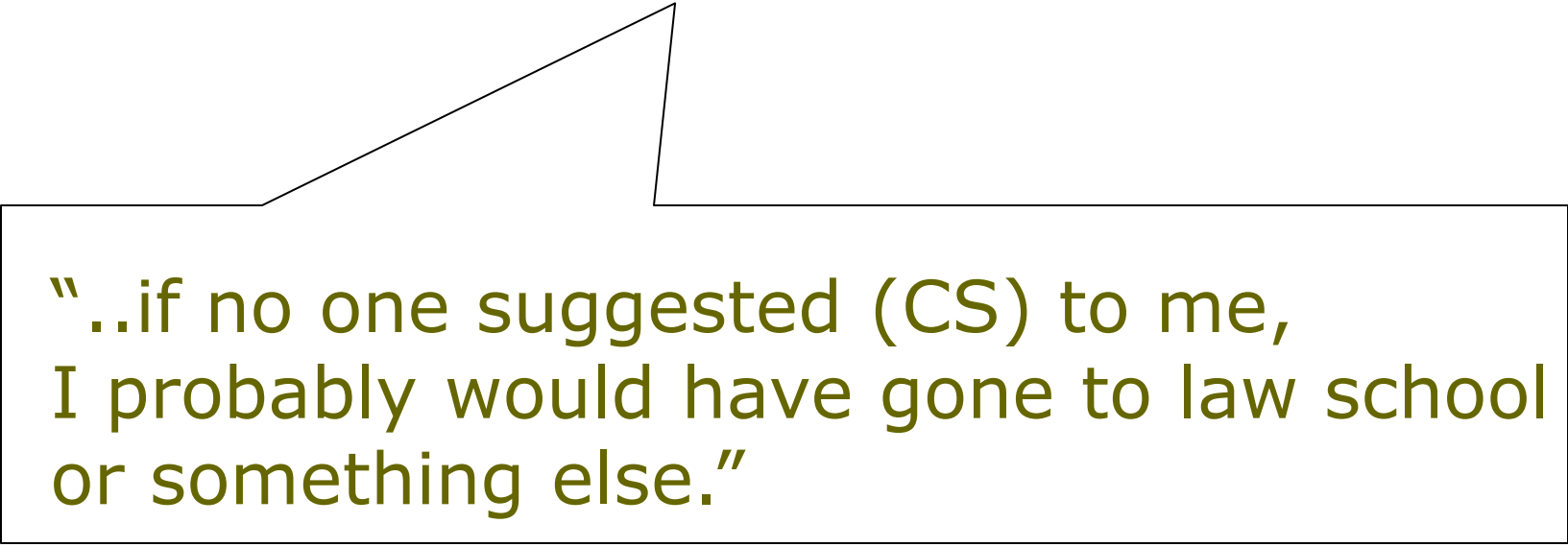
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“The real problem is that, when it comes to high school CS, *we’re just not there*. If you choose a high school at random, you are ten times more likely to find one that offers *no CS* than to find one offering AP CS. .... **Most kids just don’t have access.**”  
(*Computing Education Blog, April 21<sup>st</sup>, 2011*)

# Choice or Opportunity?

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Senior Female in CS at Carnegie Mellon



"..if no one suggested (CS) to me,  
I probably would have gone to law school  
or something else."

# Graduates Could Work Here!

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## Hardware & Software:

Microsoft



Dell

**Microsoft**

Sun

IBM



Intel

Boeing

Apple

## Web:

Google



Microsoft

Amazon

Facebook



Yahoo

Vivisimo

## Finance:

Goldman Sachs

Morgan Stanley

Merrill Lynch



## Consulting:

Accenture



Deloitte & Touche

PricewaterhouseCoopers

## Arts & Entertainment:

Dolby

Lucas Arts Film Company

Pixar Animation Studios

Walt Disney Imaging



# Recommendations and Resources 1.:

## Helping your kids prepare for a CS Future

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### *Useful Skills...*

- Computer science (if offered but not necessary)
- Mathematics and Logic
- Science
- Joining or starting a math club
- Joining or starting a robotics club
- Teamwork skills
- Communication skills

# Recommendations and Resources 2.:

## Helping your kids prepare for a CS Future

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### CMU:

- TechNights (middle school girls) <http://women.cs.cmu.edu/technights/>
- K-12 Roadshows (invite us to your school) <http://www.women.cs.cmu.edu/What/Outreach/Roadshow/>
- Girls of Steel (high school girls) <http://news.cs.cmu.edu/article.php?a=2314>
- C-MITES (K-9) <http://www.cmu.edu/cmities/>
- Andrew's Leap (high school) <http://www.cs.cmu.edu/~leap/>
- Summer Academy for Mathematics + Science  
<http://www.cmu.edu/enrollment/summerprogramsfordiversity/sams.html>
- All CMU Outreach: <http://gelfand.web.cmu.edu/sections/outreach/k12.php>

### OTHER:

- Women of Spirit Institute Summer Workshops (for high school girls at Carlow University)  
<http://www.carlow.edu/summerworkshops/>
- Medical Explorers at Univ. of Pittsburgh (high school)
- Expanding Your Horizons: <http://www.expandingyourhorizons.org/>
- **Online Free CS Puzzles and Games:** <http://csunplugged.org/> and <http://www.cs4fn.org/>
- iD Tech Camps <http://www.internaldrive.com/>

# Recommendations and Resources 3.:

## Helping your kids prepare for a CS Future

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### *For Teachers...*

- K-12 Roadshows (invite us to your school)  
<http://www.women.cs.cmu.edu/What/Outreach/Roadshow/>
- ACTIVATE Workshops for Math/Science teachers (includes a video promotional) <http://www.cs.cmu.edu/activate/>
- CS4HS for CS Educators: <http://www.cs.cmu.edu/cs4hs/>
- "The Exciting World of Computer Science" Poster  
<http://www.women.cs.cmu.edu/What/Outreach/csposter.pdf>



**Thank You!**