



# **COMPUTING OCCUPATIONS ARE TOO GOOD AND TOO IMPORTANT TO IGNORE**

**J. McGrath Cohoon  
NCWIT  
UVA**



**Evidence on factors affecting women's recruitment and retention**

# **WHY FEW FEMALES PURSUE COMPUTING**

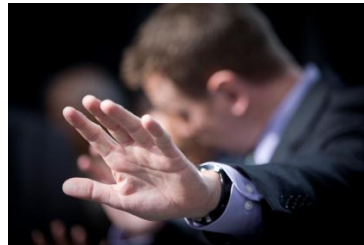


## REASONS FEW WOMEN PURSUE COMPUTING



- ✓ Lack of information/misconceptions
- ✓ Educational policies allow choices influenced by stereotypes
- ✓ Stereotypes reduce confidence and interest

- ✓ Little support and encouragement



## LACK OF INFORMATION AND MISCONCEPTIONS

Computer science is what?  
Programming? Keyboarding?  
Excel spreadsheets?

Few students, parents, or teachers  
know what computer scientists do

Too many sources misinform  
and reinforce stereotypes

*I don't wanna sit  
in front of a  
computer all day*  
- Carter 2006





## POLICIES ALLOW STEREOTYPE-BASED CHOICE

Carter 2006

Charles & Bradley 2006



## STEREOTYPES REDUCE CONFIDENCE AND INTEREST

Cultural belief: Disconnect between “feminine” and “technical”


- Lagesen 2005



Stereotype threat: Fear of confirming negative beliefs about my group

- » Hinders performance
- » Affects choices and aspirations
- » Leads to harsh personal standards, opting out if not met

- Correll 2004



## TOO LITTLE SUPPORT & ENCOURAGEMENT

Peers and authorities


- » You're studying what?
- » Women need to explain their choice of CS ...but men don't

- Cohoon 2006

Isolation


- » Feeling like you do not belong


- Kissinger et al. 2009









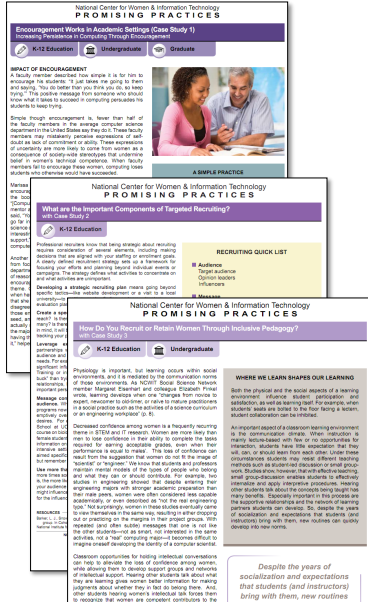



# PERSONAL ACTIONS


Actively recruit using messages that reach, inform, and appeal to females

Use pedagogies that spark interest and build peer support

Personally encourage; explain that effort increases ability; mentor

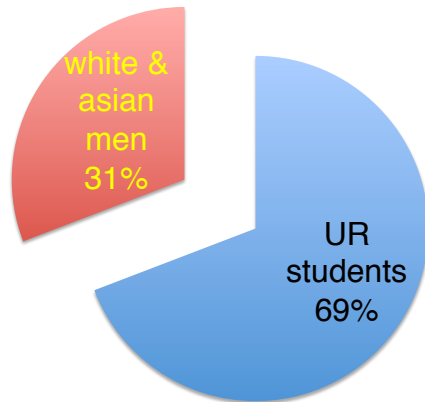






# ACTIVELY RECRUIT FROM THE UNDERUTILIZED MAJORITY

## College Student Demographics, 2009



Demographic	Percentage
UR students	69%
white & asian men	31%







## THREE OF THE TOP TEN OCCUPATIONS ARE COMPUTING

Systems Engineer		Manage large complex projects
IT Project Manager		Plan, organize, and oversee the team on a computing project
Network Security Consultant		Protect important computer systems from infiltration



Source: CNNMoney.com, Best Jobs in America, 2011



## COMPUTING OFFERS EXCITING WORK THAT AFFECTS OUR WORLD AND THE PEOPLE IN IT

	Create technology for
	<ul style="list-style-type: none"><li>• Tracking endangered dolphins</li><li>• Mobile forensics labs for instant analysis at crime scenes</li><li>• GPS systems that guide blind people</li><li>• Scanning DNA for childhood diseases</li><li>• Designing and displaying new fashions</li></ul>

Source: dotdiva.org






## COMPUTER SCIENTISTS GIVE BACK TO THEIR COMMUNITIES



*technology in the name of human rights."*

You can design:

- A secure database to record human rights abuses that shields the identity of victims or witnesses.
- Online petition software that can instantly collect signatures about urgent causes.
- A mobile toolkit that allows human rights workers to discreetly video and document abuses in remote or dangerous areas.





Lisa Rau founded Confluence as a technical resource to the nonprofit sector. She serves on boards and encourages a spirit of volunteerism.


## COMPUTER SCIENTISTS WORK IN EVERY INDUSTRY

I design how animated characters move on film.




Kendal Sager  
**Animation/Film**

I created a smartphone app for art museum visitors.




MaCherie Edwards  
**Art History/ Education**

I develop computer simulations that increase our knowledge of nearby galaxies.




Gurina Besla  
**Astronomy**

I help bring high-speed Internet to disadvantaged communities around the world.




Clare Liguori  
**Communications/ Internet Technology**

I develop software for a cochlear implant that will help people who are deaf to hear.




Sahray Gambaro  
**Disabilities**

I create 3-D fashion design software.




Anamary Leal  
**Fashion & Design/ Computer Graphics**

I develop software that can design easy-to-build shelters for victims of disasters.




Claudia Gold  
**Humanitarian & Disaster Relief**

I research ways to fight cybercrime and identity theft.




Tyelisa Shields  
**Internet Technology/ Forensics**

I developed a "virtual nurse" for hospital patients.




Laura Pfeifer  
**Medicine**

I work with artists and musicians to create software for music video games.




Maitland Lederer  
**Music/Gaming**

I helped develop a microfinance site that combats poverty.




Janelle Tulentino  
**Poverty & Social Justice**

I research how people in low-income communities use technology to address violence.




Sheena Lewis  
**Public Safety/ Poverty**

I develop digital body sensors that can save the lives of firefighters.




Yolán Amaro-Rivera  
**Public Safety/ Medicine**

I create musical robots that can play duets.



Angelica Lim  
**Robotics/Music**

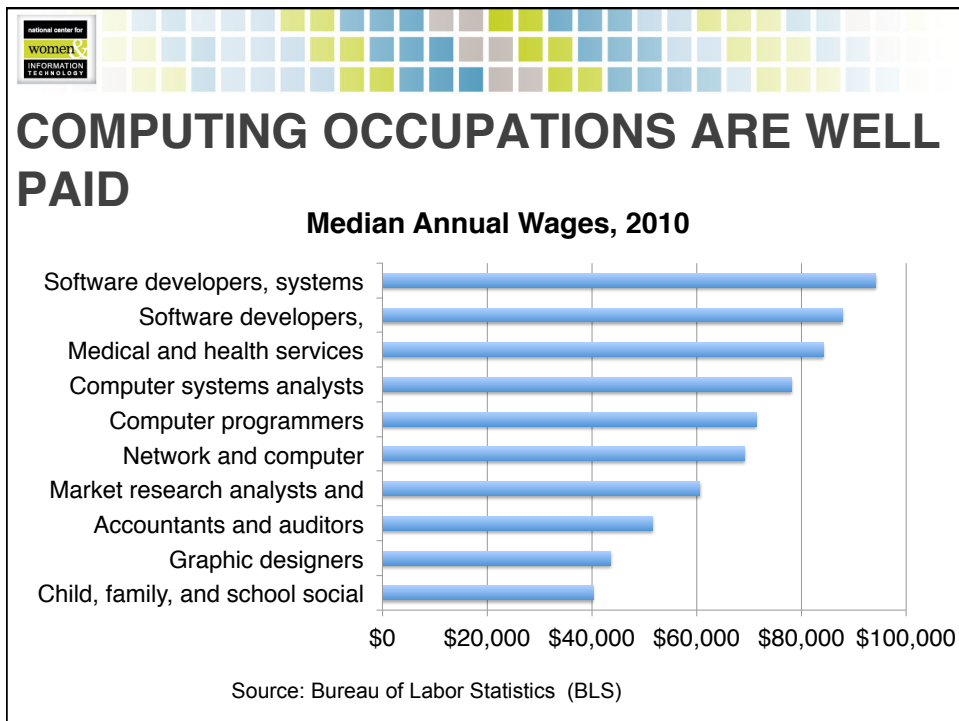
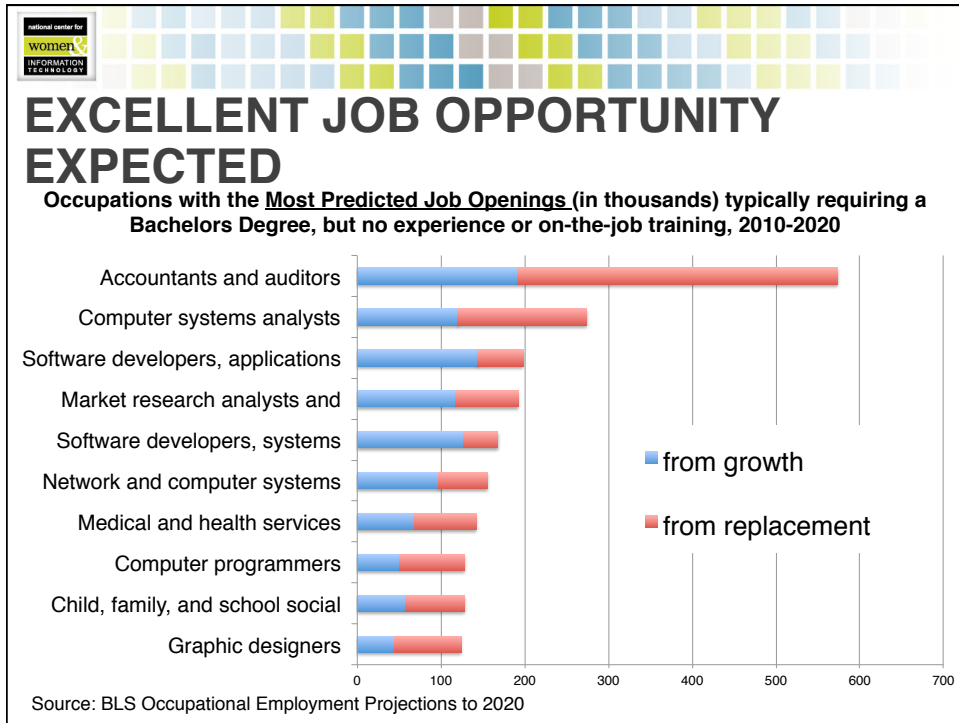
I develop features for a mobile app that helps people meet up with friends.

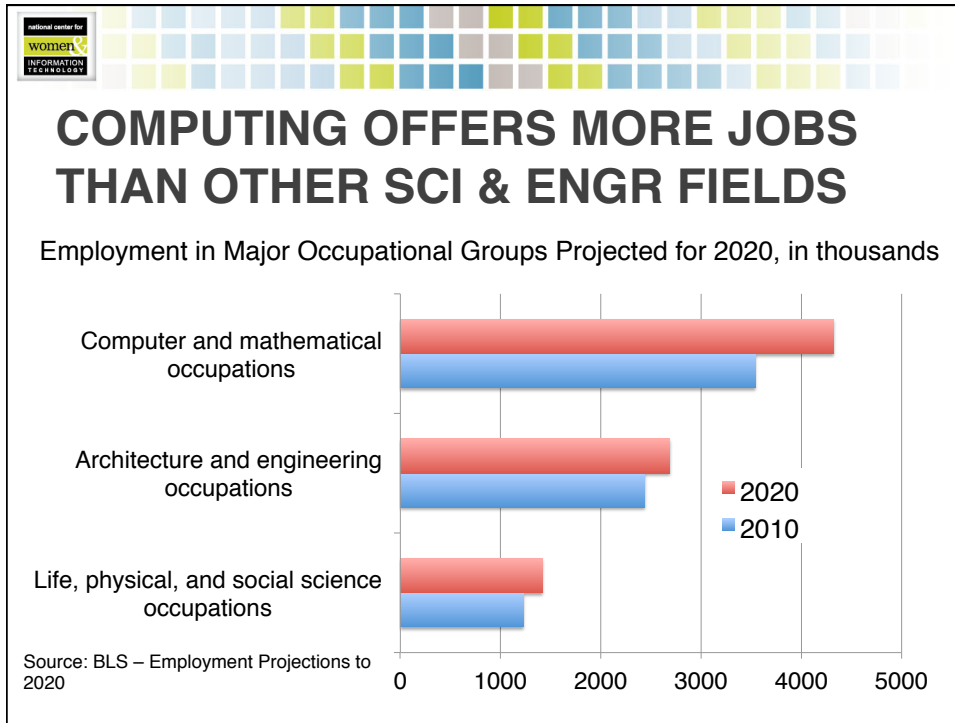


Siobhan Quinn  
**Social Networking**

Source: dotdiva.org







**FREE RESOURCES TO LEARN MORE AND INFORM OTHERS**

Statistics about computing education and workforce in your area [www.ncwit.org/edjobsmap](http://www.ncwit.org/edjobsmap)

