Panel: Why Women are Turned Off by Technology and How to Overcome It

Anna Nagurney, PhD
John F. Smith Memorial Professor
Isenberg School of Management
and
Director - Virtual Center for Supernetworks

The Virtual Center for Supernetworks
Supernetworks for Optimal Decision-Making and Improving the Global Quality of Life

Mind the Gap! Career Summit for Women & Technology
UMass Amherst - Thursday, September 27, 2007
Is There a Problem? Yes!!!

The participation by women in Computer Science (CS) has been steadily decreasing at the undergraduate level.

Today, the percentage of CS Bachelor's degrees granted to women at research universities is at 14%, the lowest ever!

http://www.cra.org/info/taulbee/women.html
Many of the top CS departments are reporting female enrollments at fewer than 10% in the major.

At the doctoral level, the situation is a bit better, with between 15%-18% of CS Doctorates being awarded to women over the past seven years.

The percentage of female faculty in CS departments has been steadily increasing.
The State of the Union

The Opportunities in IT are HUGE and have never been better!

The Field is Interdisciplinary -- You don’t need a degree in CS to be part of IT.
What Does it Take for Success in IT?

- Technology is constantly changing and evolving so a successful career in IT involves always learning new skills.
- Need to learn the fundamentals but also have a passion for learning in a very dynamic environment.
- An individual needs to be willing to evolve in new directions.
- Being creative, a problem-solver, an innovator, and seizing new opportunities.
The Fundamentals are Essential!

- Communication Skills derived from reading and writing
- Mathematics
- Coding/programming to understand the underlying logic involved in problem-solving
What Leaders Can Do!
Generate Excitement about the Terrific Opportunities in IT and its Applications

- IT and Energy and the Environment
- IT and Finance
- IT and Healthcare
- IT and Transportation and Logistics
- IT and Social Networking
- IT and Marketing
- IT and the Arts and Entertainment
- IT and Education
What Else can Leaders do?

Create Positive Change for Others -- There are So Many Opportunities to Do This!

Show the Impact of Your Work on Society!

Advocate for Women in IT through Management!
When you get contacted for interviews by students from elementary, middle, and/or high schools agree to be interviewed and talk about your experiences as a professional and researcher.

Share your life stories. Nothing like hearing back that the student got an A+ on her science project because she wrote about you!
Get Students Involved Early!
http://student.som.umass.edu/informs

Welcome to the UMASS Amherst Student Chapter of INFORMS Website
FALL 2007 UMASS Amherst
Operations Research / Management Science Seminar Series

September 14, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Seminar Science: a New Opportunity for Operations Research
Dr. Brenda Dietrich
IBM Thomas J. Watson Research Center
Yorktown Heights, NY

September 28, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Dr. Timothy Sikes
(1989 MBA, 1991 Ph.D.)
Citigroup
London, United Kingdom
(Joint Management Science/Finance Seminar)

October 19, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Music and Operations Research - The Perfect Match
Professor Filipea Chew
University of Southern California (USC) and 2004/2005 Science-Iellow at the Hadassah Institute for Advanced Study, Harvard University, Cambridge, MA

October 26, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Learning and Exploiting Statistical Dependencies in Networks
Professor David Jensen
Department of Computer Science
University of Massachusetts at Amherst

November 2, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Dr. Joanne Hill
Goldman Sachs
(Joint Management Science/Finance Seminar)

November 16, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Decision Model Development in Engineering Design
Professor Sondipon Adhikary
Department of Mechanical and Industrial Engineering
University of Massachusetts at Amherst

December 4, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Is It Really Safe to Fly?
Professor Arnold Barnett
George E. Brown Professor of Management Science
Sloan School of Management
Massachusetts Institute of Technology
Cambridge, MA

Spring 2007 UMASS Amherst
Operations Research / Management Science Seminar Series

February 23, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Competition and Efficiency in Connected Networks
Professor A. B. Subrahmanyan
Department of Electrical Engineering and Computer Science
Massachusetts Institute of Technology
Cambridge, MA

March 9, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Simple Models of Influenza Progression and Control
Professor Richard D. Lensky
Mirai Professor and Director
Center for Engineering Systems Fundamentals
Department of Civil and Environmental Engineering
Massachusetts Institute of Technology
Cambridge, MA

March 16, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Calm and Sake: The Strategic Significance of Their Regional Development in China in the Global Supply Chain
Professor Karen H. Holenske
Department of Urban Studies and Planning
Massachusetts Institute of Technology
Cambridge, MA

March 30, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Intervention Modeling and Simulation: An Effort of 60+ Years
Professor David J. Bontx
Department of Civil and Environmental Engineering
University of Massachusetts at Amherst

April 13, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Adaptive Online Allocation Mechanisms for Single-Valued Domains
Professor David Parkes
John L. Loeb Associate Professor of the Natural Sciences and Associate Professor of Computer Science
Division of Engineering and Applied Science
Harvard University
Cambridge, MA

April 27, 2007 - Isenberg School of Management
Room 112, 11:00 - 12:00
Chasing Interdisciplinary while Chasing Tornadoes: an Overview of the CASA Engineering Research Center
Professor David J. Moloughlin
Director, BHC for Collaborative Adaptive Sensing of the Atmosphere (CASA)
Department of Electrical and Computer Engineering
University of Massachusetts at Amherst
Increase the Visibility of Women

- In the Media
  - Make sure that the Media Features Professional Women in IT!
- As Plenary Speakers
- As Leaders of Professional Societies
- As Authors
- As Holders of Patents
- As TOP-Level Managers
Books and Resources
Unlocking the Clubhouse
Women in Computing
Jane Margolis and Allan Fisher
MIT Press, 2003

“The information technology revolution is transforming almost every aspect of society, but girls and women are largely out of the loop. Although women surf the Web in equal numbers to men and make a majority of online purchases, few are involved in the design and creation of new technology. It is mostly men whose perspectives and priorities inform the development of computing innovations and who reap the lion's share of the financial rewards. As only a small fraction of high school and college computer science students are female, the field is likely to remain a male clubhouse, absent major changes.”
Encyclopedia of Gender And Information Technology
Eileen Moore Trauth, Editor
Beautiful Code: Leading Programmers Explain How They Think
Andy Oram and Greg Wilson
O'Reilly, 2007

Out of 38 Chapters, only 1 is by a female.
It’s not just an IT issue!!
Additional Books

Stories of women in the Life Sciences in the San Francisco Bay Area.

Chapters include:
Out of Control: Managing Time and Establishing Equilibrium
Boss, Mother, Friend, Role Model: Working with Students and Employees
Putting It Out There: Writing and Giving Talks
Nobody Taught Us This in School: Institutional Politics and Strategy

Achieving XXcellence in Science: The Role of Professional Societies in Advancing Women’s Careers in Science and Clinical Research

National Academy of Sciences Press, 2002
To Contact Professor Nagurney:

Professor Anna Nagurney
John F. Smith Memorial Professor
Department of Finance and Operations Management
Isenberg School of Management
University of Massachusetts at Amherst
Amherst, MA 01003
413-545-5635
nagurney@gbfin.umass.edu
http://supernet.som.umass.edu