



TSYS School of Computer Science



Tri-County High School Marion County October 2011



Wayne Summers, Columbus State University

CHALLENGE!

- The number of Computer Science majors dropped 40-50% nationwide between 2001-2008
- The percentage of women has dropped to about 10%
 - From a high of about 40% in the early 80s
- Projections of 46% job growth over the next 10 years!
- “Computer Science major is cool again”
- “Want a job? Get a computer science degree”

Challenge

“Finding a way to attract new talent to develop the new systems and applications that are becoming available from major vendors and startups alike may be the biggest technological issue we face for the rest of the decade.”

Editorial Director Eric Lundquist, eweek.com, May 7, 2007.

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- Myth #1

- All computing jobs are going overseas

- Only about 1-2% have
 - There are actually more jobs now in computing than in 2001
 - U.S. IT employment increased by 12,900 jobs, or 0.3%, in January, one of the best month-to-month gains since the recession hit in late 2008
 - The IEEE-USA recently said the [unemployment rate for software engineers](#) fell from 4.7% to 4.1% from the third to the fourth 2009 quarter

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1. Biomedical Engineers	6. Environmental Engineers
2. Network Systems and Data Communications Analysts	7. Computer Systems Software Engineers
3. Financial Examiners	8. Survey Researchers
4. Athletic Trainers	9. Personal Financial Advisors
5. Computer Applications Software Engineers	10. Market Research Analysts

The 10 fastest-growing jobs between now and 2018

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<http://careerplanning.about.com/>



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Occupation Total Job Openings 2008-2018

- Elementary school teachers 597,000
- Accountants and auditors 498,000
- Secondary school teachers 412,000
- Middle school teachers 251,000
- **Computer systems analysts 223,000**
- **Computer software engineers, applications 218,000**
- **Network systems and data communications analysts 208,000**
- **Computer software engineers, systems software 153,000**

**Occupations with the Most Job
Openings: Bachelor's Degrees**

- Myth #2
 - Only geeks do well in computing



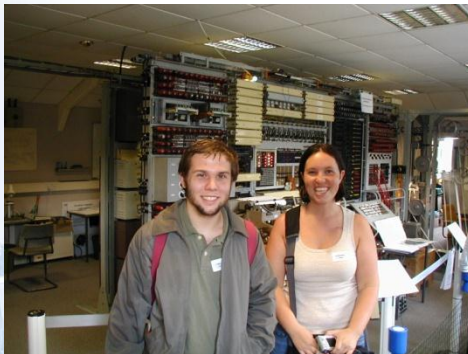
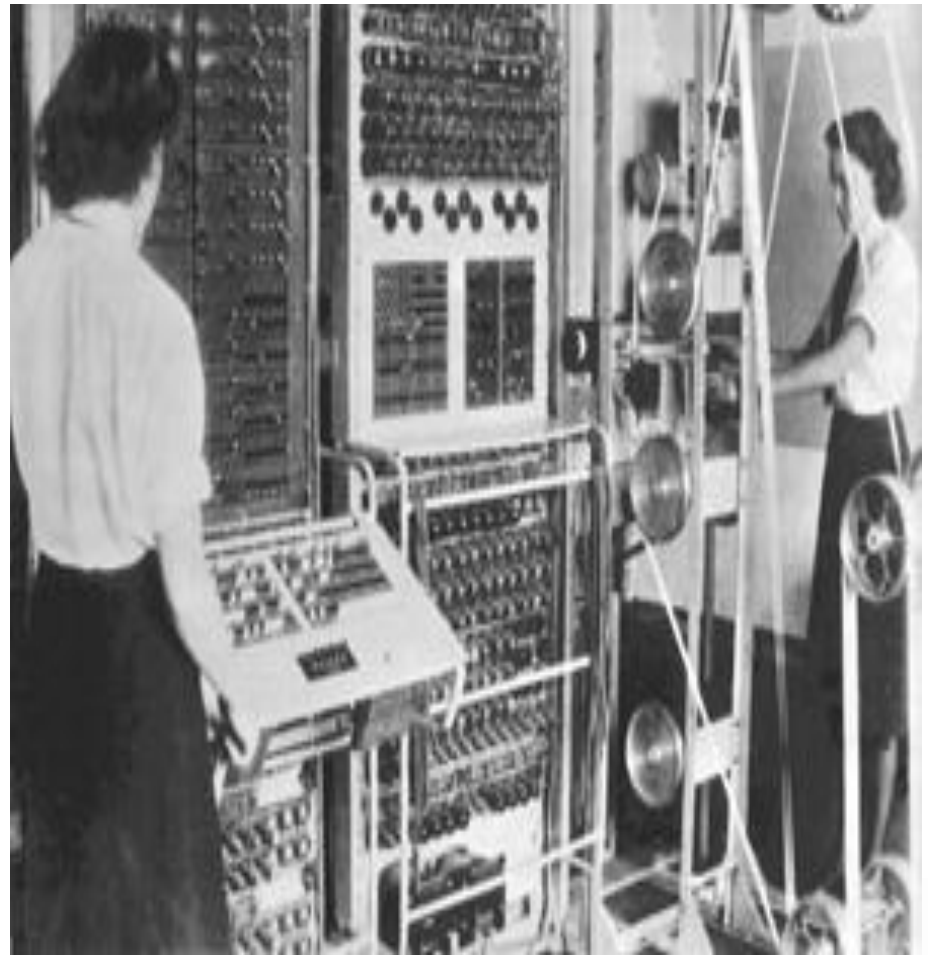
July 21, 5:43 pm: The nerds meet the geeks

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- **Trick question:**

What was the average weight of a computer in the early 1940's?



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- Who is in Computer Science?



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- Myth #3
 - You have to like to play computer games
- Professionals in computing
 - Say that you should like:
 - *******Problem solving*******
 - Working with others in a team
 - Being creative




A banner with a blue background featuring silhouettes of people and abstract patterns. The text "COMPUTING" is in large white letters, and "DEGREES & CAREERS" is in smaller white letters on a red horizontal bar.

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Careers at Google, Amazon, and Microsoft

(9 min)

A faded background image showing a student jumping in front of a large clock tower.

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- Myth #4
 - **The job is boring!**
 - Computer Science students are often surprised how creative and exciting it is
 - Example: Computing Graphics, Game Programming, Artificial Intelligence, Robotics...

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- Money Magazine rated software engineer the #1 job in 2006
 - Flexibility: pick your hours
 - Creativity: highest grade of any job
 - Growth 44,800 average job openings a year
 - Average Pay: \$80,500 to 6 figures (Software Architect - \$138K)
 - Median Entry-level Pay: \$54,000-\$59,000
- Computer IT Analyst was #7
 - Median Entry-level Pay: \$50,000

Top 10 best jobs

<http://money.cnn.com/magazines/moneymag/bestjobs/>

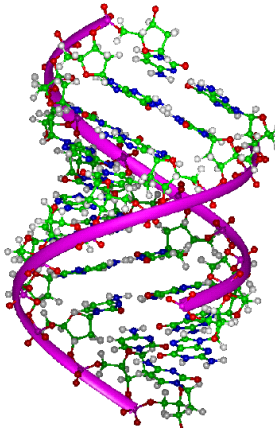


What Computing is Today



Graphics

Virtual Environments



Bioinformatics



10/24/2011 Wearable Computing

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What Computing is Today

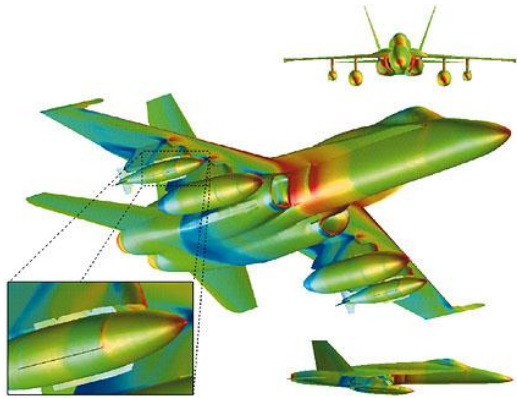
Ubiquitous Computing



Databases



Information Security



High Performance Simulation


A banner with a blue and purple background featuring silhouettes of people and abstract geometric shapes. The text "COMPUTING" is in large white letters, and "DEGREES & CAREERS" is in smaller white letters on a purple background.

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What Computing is Today

[Pathways to Computer Science](#) (11 min)

A faded background image showing a student jumping in front of a tall clock tower.

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The PC of tomorrow

Video:

- Microsoft Surface:

<http://www.microsoft.com/surface/en/us/Pages/Experience/Videos.aspx>

MIT Media Lab's "Sixth Sense": (5 min)

<http://video.computerworld.com/services/player/bcpid1351827287?bctid=14706015001>



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Bachelor of Science in Computer Science

– Systems

- designed for students who plan on continuing to a graduate program in Computer Science or who want a more traditional and theoretical degree

– Applied

- less theoretical with a focus on mainframe programming and web programming

– Games

- designed for students who plan on continuing to a graduate program in Computer Science or who want to work in the gaming industry

- **Minor Computer Science** (18 semester hours)

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Academic Programs in Computer Science



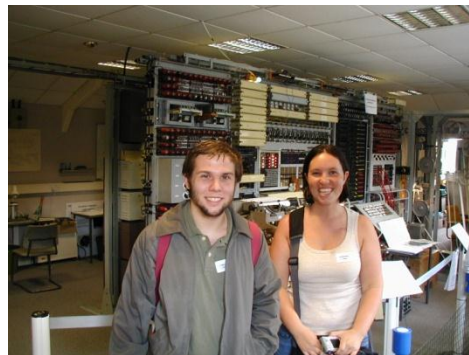
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Bachelor of Science in Information Technology

- provides students with a combination of knowledge, hands–on experience, and application of theory.
- The curriculum emphasizes quantitative and communication skills as well as providing a basic foundation in understanding the business process and the role of Information Technology in supporting that process.

Computer Science Teacher Endorsement





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- Undergraduate curriculum modeled after ACM Computing Curriculum with input from industry
- Our program in Information Assurance has been recognized by the National Security Agency (NSA) as a Center of Academic Excellence in Information Assurance Education and meeting their criteria for training Information Systems Security Professionals and Information Systems Security Officers.

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Quality of Academic Programs

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- Software Engineers / Architects
 - (Most Satisfying Job Rating by CNN Survey 4/13/07)
- Computer Programmers / Software Developers
 - Java, C++, VB, C#, .NET, COBOL, Assembler,...
- Game & Simulation Programmers
- Web Developers
- Systems Analysts
- Database Administrators
- Network Managers
- Computer and Network Security Specialists



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- Approximately 300 undergraduates
- TSYS Foundation Scholarships
- Student research opportunities
- Variety of internship and coop opportunities
- Study-abroad opportunities
- ACM Student Chapter
 - Programming Competition
 - Invited Speakers
 - Educational Tours
- Columbus Regional Technology Center (Incubator)



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Computer Science Students

- **Wireless and Network Security**
 - Honorable mention in Undergraduate presentations at ACM-MidSoutheast (2009)
 - Second place in Graduate presentations at ACM-MidSoutheast (2008)
 - Third place in Undergraduate presentations at ACM-MidSoutheast (2005)
 - Third place in student presentations at InfoSecCD (2005)
- **Forensics**
- **Malware Detection**
- **Game Programming / Simulation**
 - Third place in Undergraduate presentations at ACM-MidSoutheast (2009)
- **Embedded Computing**
- **Software Evaluation**
- **Legacy Code Transformation**
- **Ubiquitous Computing**
 - First place in Undergraduate presentations at ACM-MidSoutheast (2004)



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- Columbus Waterworks
- AFLAC
- TSYS
- Synovus
- Ft. Benning Virtual Soldier Lab
- Ft. Benning Martin Army Hospital
- Columbus Ledger-Enquirer
- Wellpoint
- Georgia Power
- CSU
- Cubic (Omega Training)



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Internship and coop opportunities



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- What you should study in H.S.?
 - Mathematics
 - Science (chemistry, physics, computer science)
 - Writing and Speech classes
 - Foreign Language classes

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- Computer engineering: will typically involve software and hardware and the development of systems that involve both software, hardware, communications
- Computer science: currently the most popular of the computing disciplines, tends to be relatively broad and with an emphasis on the underlying science aspects.
- Information systems: essentially this is computing in a business context
- Information technology: computing in support, and will tend to involve a study of systems (perhaps just software systems, but perhaps also for instance systems in support of learning, of information dissemination, etc.)
- Software engineering: based on software and involves employing certain ideas from the world of engineering in building reliable software systems

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QUESTIONS?



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IT is all about ME

computer science



talk to your computer teacher
talk to your school counselor

<http://csta.acm.org> • <http://www.acm.org/women>
<http://www.schoolcounselor.org>



IT is computer science • IT is computer engineering • IT is information systems • IT is information technology • IT is software engineering

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