Computer Science @ Virginia Tech

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(Academic Advisors)

Things you already know...

- The world is flat.
- Computing is a big deal.
Employment: Supply & Demand

Downturn in interest…. despite bright job prospects

What Is Computer Science?

Study and Design Computing Systems to
Solve Problems Build Communities
Enrich Lives Create Worlds
Manage Information Invent the Future

- HCI
- Multimedia
- Internet Programming
- Bioinformatics
- Database
- Software Engineering
- Algorithms
- Operating Systems
- Parallel Computing
- Computer Org.

CS

- Users
- Application Software
- Computing Systems Software
- Computing Systems Hardware
What makes a good computer scientist?

- Careful, logical thinker and communicator.
- Creative, persistent problem-solver.
- Engaging collaborator.
- Flexible, life-long learner.

What do CS grads do?

- A *wide* variety of jobs and fields: software engineer, systems designer/analyst, multimedia, graphics, gaming, security, networking, database, data-mining, information retrieval, simulation, web services, e-government, defense, drug design, networking, etc., etc., etc.
Who hires VT CS grads?

- Booz Allen Hamilton
- Clinical Tools, Inc
- DCS Corporation
- General Electric
- General Dynamics
- Harmonia, Inc.
- High Performance Technologies, Inc
- IBM
- Lockheed Martin
- Medicos
- Microsoft
- Moog Components Group
- National Security Agency
- Naval Surface Warfare Ctr.
- Northrup Grumman
- Online Construction, Inc.
- PCGuardian Technologies
- Raytheon Company
- The Rimm-Kaufman Group
- The Vanguard Group

Survey of May 2005 Grads

Graduate Schools

- Auburn
- Carnegie Melon
- Cornell
- Duke
- Florida State
- George Mason
- Georgetown
- Georgia Tech
- Johns Hopkins
- NC State
- Purdue
- UCLA
- U of Illinois Urbana-Champaign
- U of Maryland
- U of Massachusetts-Amherst
- UT Austin
- U of Tulsa
- UVa

- Virginia Tech!
About the Department

- ~36 full-time faculty in Blacksburg
- ~300 undergraduate students
- ~200 graduate students
- Accredited
  - Computing Accreditation Commission
  - Accreditation Board for Engineering and Technology

Where is the CS Department?

- Undergraduate Learning Center
- Advising Center
- Labs to support upper level courses in
  - Systems
  - Software Engineering
  - Multimedia and Animation

- Digital Library Research Laboratory
- Laboratory for Advanced Scientific Computing and Applications
- Computational Biology & Bioinformatics
- Software Engineering

McBryde Hall

Torgersen Hall
Knowledgeworks II (CRC)

- 20+ faculty
- 100+ graduate students
- Two centers and associated laboratories:
  - Center for Human-Computer Interaction (CHCI)
  - Center for High-End Computing Systems (CHECS)
- Main office, technical support, …
- BT every 15 minutes (CRC Shuttle)

Degree in Computer Science

- Mathematics (22 hours)
- Computer Science (46 hours)
- Lab Sciences (12 hours)
- Public Speaking Statistics Engineering Ed (10 hours)
- Liberal Arts (30 hours)

123 hours total
### A Few Details ...

<table>
<thead>
<tr>
<th>Year</th>
<th>Course 1</th>
<th>Course 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General Engineering</td>
<td>Intro to Object Oriented Devl.</td>
</tr>
<tr>
<td>2</td>
<td>Intro to Problem Solving in CS</td>
<td>Software Design &amp; Data Structs</td>
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<tr>
<td></td>
<td>Discrete Math</td>
<td>Computer Organization I</td>
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<tr>
<td>3</td>
<td>Programming Languages</td>
<td>Data Structures &amp; Algorithms</td>
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<tr>
<td></td>
<td>Computer Organization II</td>
<td>Operating Systems</td>
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<tr>
<td></td>
<td>CS Elective</td>
<td>Professionalism in Computing</td>
</tr>
<tr>
<td>4</td>
<td>CS Theory Elective</td>
<td>CS Capstone</td>
</tr>
<tr>
<td></td>
<td>CS Elective</td>
<td>CS Elective</td>
</tr>
<tr>
<td></td>
<td>Technical Elective</td>
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</tbody>
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### Tracks: an opportunity for depth

**Tracks**

- Human-Computer Interaction
- Creative/Media Computing
- Scientific Computing
- Knowledge, Information, and Data Systems and Networking
- Software Engineering

- Tracks are **light weight** (typically 3-6 courses)
- Tracks give students advice about how to choose their electives and sequence their courses
- Tracks are not mandatory
Track examples

<table>
<thead>
<tr>
<th>Human Computer Interaction Track</th>
<th>Knowledge, Data, Info Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to HCI</td>
<td>Design of Information</td>
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<tr>
<td>Graphical User Interface Programming</td>
<td>Database Management Systems</td>
</tr>
<tr>
<td>HCI Capstone</td>
<td>Multimedia, Hypertext &amp; Info Access</td>
</tr>
<tr>
<td>Choose from:</td>
<td>Choose from:</td>
</tr>
<tr>
<td>Computer Graphics</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>Design of Information</td>
<td>Data Mining</td>
</tr>
<tr>
<td>Video Game &amp; Interactive Media</td>
<td>Internet Programming</td>
</tr>
</tbody>
</table>

If I had more time I’d talk about...

- Math minor
- Undergraduate research opportunities
- 5 year bs/ms program
- Co-op and internships
- Student organizations: ACM, UPE, AWC, CS²
- Co-ops and internships
- Job fairs and recruiting
For more information ...

- These slides: people.cs.vt.edu/ribbens
- CS @ VT homepage: www.cs.vt.edu
- Quotes, Myths, FAQ: faq.cs.vt.edu
- CS Blog: blog.cs.vt.edu
- CS Academic Advisors:
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  Libby Bradford (bradfolg@vt.edu, AIM csadvr)