Industry Tour

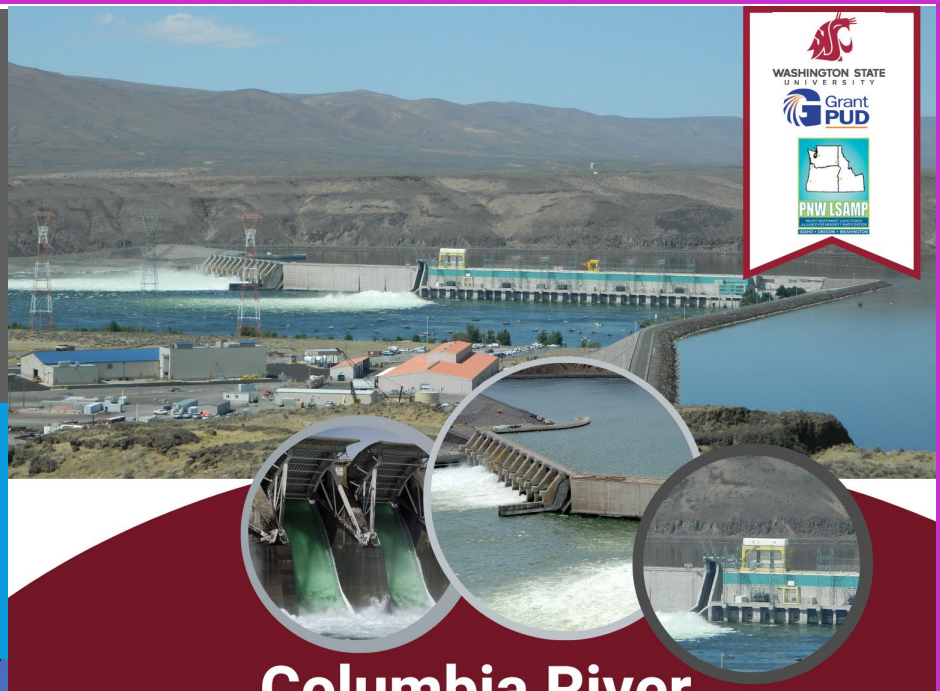
Schweitzer Engineering Laboratory

Research & Development Unit
Pullman, WA

Wednesday, August 24
3:30 – 5:00 p.m.

- Employs all engineering disciplines
- Internships available full-time or part-time, year-round
- Based in Pullman with employees worldwide
- Develops embedded system products for electrical power systems to make them safe

Scan the QR code or sign up on Handshake:
https://wsu.joinhandshake.com/edu/events/823562



WASHINGTON STATE UNIVERSITY
Grant PUD
PNW LSAMP

Columbia River Wanapum Dam Tour

Hosted by Grant County Public Utility District

September 16, 2022

Event is open to all Junior and Senior Electrical Engineers, Mechanical Engineers, Civil Engineers, Computer Science and Construction Management majors at all WSU campus locations.

Tour Includes:

- Round-trip transportation provided as indicated on registration page
- Tour of generation, transmission and distribution facilities
- Meet with engineers working onsite
- Lunch will be provided

Tour

Friday, Sept. 16, 9 a.m. - 3 p.m.

Pick-up Point

Leaving from campus at 6 a.m. and returning to campus at 6 p.m. **more details will be provided**

Sign up using QR code

Lect. #1: Introduction to CptS/EE 302
Professional Skills in Computing and Engineering

Agenda for Today

1. Some Course Information

2. Course Coverage

3. Quinncia

4. Course Work/Grading

5. Raison d'être

6. Some Ethical Scenarios

Course Information

- Instructor: Shira Broschat, shira@wsu.edu
- UGTAs: Logan Foster, Aidan Griffin, Alexis Hinton, Andrew Smith
- Purchase subscription to iClicker Student app or register your remote using link in **Canvas** in **Useful Links** module, $15.99 for 6 months; polling will start next Tuesday, 8.30.22 (12%)
- Please ***read the syllabus*** (in Canvas under Useful Information); you're responsible for knowing its contents!
- Two textbooks are optional; most reading assignments will be from online sources

Course Coverage

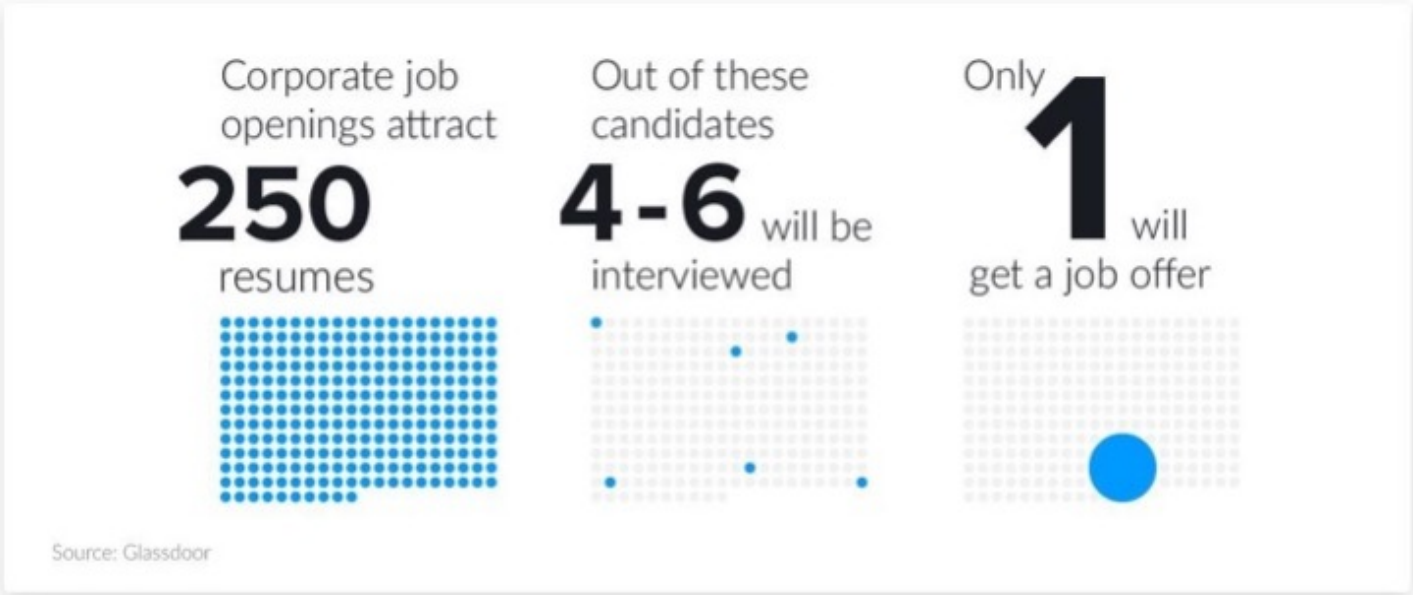
- Project Management
  - "Classical"
  - Agile
- Ethics
  - Ethical Theories
  - Critical Reasoning
  - Professional Codes of Ethics
  - Whistleblowing
  - Privacy
  - Intellectual Property
  - AI
- Useful Skills for "Out There" (8 guest lectures)

www.mtautomation.com/wp-content/uploads/2017/02/PM-Photo-6.jpg

Quinncia

- Engr 120 and CptS/EE 302 chosen to pilot this app
- Need your feedback to know whether it's worth getting for all VCEA, i.e., please use it
- AI app that screens resumes the way many companies do
  - Amazon receives 80,000 applications per day
  - Microsoft and Google receive 50,000-70,000 applications per week
  - Companies use automatic tracking software (ATS) systems
- Does mock interviews based on your latest resume
- Prizes to students with highest score for Resume and Interview
- I'll let you know as soon as you can use Quinncia; I'll be uploading email addresses after Sandi Brabb gives me the go-ahead

Quinncia


Corporate job openings attract
250
resumes
Out of these candidates
4-6 will be interviewed
Only 1 will get a job offer
Source: Glassdoor

Course Work/Grading

- PM HW (9%): 3 assignments
- Ethics HW (20%): 11 assignments, many back-to-back
- Professional Skills Discussion (PSD, 25%): Online group discussion which serves as the midterm exam (teams of 5 or 6 in same major; start forming asap)
- GCS-PM Plan (9%): Project management plan for your group case study (same teams as for PSD)
- Group Case Study (25%): Team research project on ethical issue related to technology culminating in final report (also initial report (5%); same teams as for PSD)
- Questions?

Why does CptS/EE 302 exist when there are actually "useful courses" I could take instead?

Struggles of New College Graduates in their First Software Development Job

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ABSTRACT

How do new college graduates experience their first software development jobs? In what ways are they prepared by their educational experiences, and in what ways do they struggle to be productive in their new positions? We report on a "fly-on-the-wall" observational study of eight recent college graduates in their first six months of a software development position at Microsoft Corporation. After a total of 85 hours of on-the-job observation, we report on the common abilities evidenced by new software developers including how to program, how to write design specifications, and evidence of persistence strategies for problem-solving. We also classify some of the common ways new software developers were observed getting stuck: communication, collaboration, technical, cognition, and orientation. We report on some common misconceptions of new developers which often frustrate them and hinder them in their jobs, and conclude with recommendations to align Computer Science curricula with the observed needs of new professional developers.

Categories and Subject Descriptors

D.2.9 [**Software Engineering**]: Management – *productivity.*

General Terms

Human Factors.

Keywords

Human Aspects of Software Engineering, Software development, computer science education.

1. INTRODUCTION

Preparing computer science graduates for eventual roles in the software development industry is a goal for many undergraduate Computer Science programs. However, employers recognize that students entering the workforce directly from university training often do not have the complete set of software development skills that they will need to be productive, especially in large software development companies. Whereas a significant body of literature has documented the costs of bringing software developers up to speed on a project or a new team, little has been written about the kinds of needs that recent graduates exhibit when joining their first software development team. Our study discovers what occurs during the beginning of the transition period from college graduate to experienced software engineer.

In this study, we spent 85 hours observing eight new software developers (NSDs) in their first six months of employment at Microsoft Corporation. A review of our observation logs shows that recent college graduates have a number of abilities which they engage effectively as they onboard[1] into the workforce. Some of the strongest skills our subjects exhibit are for writing code, writing design specifications, and persisting in the presence of difficult-to-solve problems. However, we see five ways in which recent graduates struggle to be effective: communication, collaboration, technical, cognition, and orientation. Note, only one of these five struggles focuses on the technical issues in software engineering. Additionally, some misconceptions of recent graduates also contributed in pervasive ways to difficulties in becoming effective developers in the workplace.

In this paper, we analyze the observed difficulties and recommend changes for computing curricula, including cross-curricular reforms and software engineering courses.

2. BACKGROUND

The software engineering industry often believes that the academic community is missing the mark in the education of computer science students. Eric Brechner, Director of Developer Excellence at Microsoft, identified 5 subjects that were lacking in CS education: design analysis, embracing diversity (i.e. accessibility and internationalization), multidisciplinary project teams, large-scale development and quality code that lasts – and suggests five new courses to teach them [1]. Unfortunately, while the problems with software development skills are clear from the perspective of industry, the causes underlying these problems are not. Our study uncovers some of those causes.

Lethbridge conducted a survey in 1997 across 168 professional software developers to learn about which university courses were most and least important [4]. They identified computer architecture, data structures, quality testing, and requirements gathering as most important. The survey, however, emphasizes

SIGCSE'08, March 12–15, 2008, Portland, Oregon, USA.

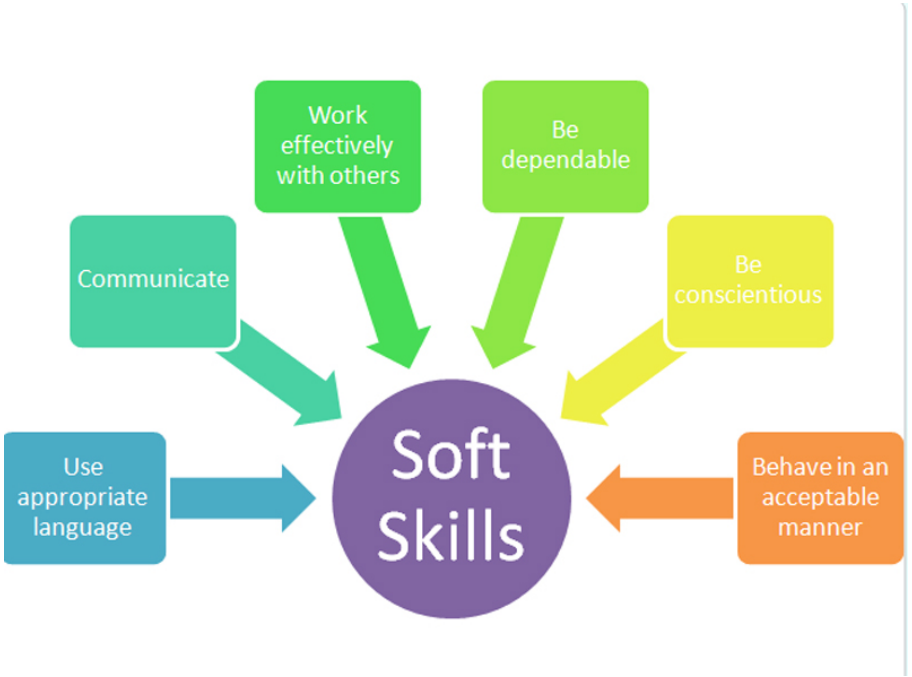
[1] "Onboarding" is the Microsoft term for the orientation process by which new hires adjust to and become effective software developers within the corporation.

2008 study by Begel and Simon:

- Observed 8 newly-hired software engineers for 85 hours over a six-month period
- Wanted to know how they transitioned to new jobs at Microsoft
- Wanted to know whether they had the skills to succeed

What did they learn from their study?

- Strengths:
  - Coding
  - Reading and Writing Specs
  - Persistence
- Weaknesses:
  - Soft skills !!!
    - Communication
    - Teamwork
    - Adaptability
    - …



pharmawisdom.blogspot.com/2016/10/soft-skills-that-job-seekers-must.html

Industry consensus is that soft skills are important!

The Gazette
montrealgazette.com

HOME NEWS OPINION BUSINESS SPO

Soft skills important for

BY PAUL BARKER, FOR POSTMEDIA NEWS MAR

It takes more than a computer science deg
that dream job in high-tech these days. N
personal communications and the ability

10 highly valued soft skills

By Mary Shacklett in 10 Things, May 30, 2013, 5:00 PM PST

Today's IT pro needs both technical expertise and soft
nothing new. But the scope of those in-demand soft sk
growing.

New Google Studies Find Soft Skills Outweigh Technical Skills

We are in a technical industry, where having technical or "hard" skills is necessary to do the job. However, to excel in th
home-services industry—or any other industry—soft skills are crucial. We are learning the importance of soft skills ov
technical skills from an unlikely source, Google. That's right, Google conducted two studies that prove the importance
soft skills.

In the first study, Project Oxygen, Google decided to test its hiring hypothesis by crunching every bit and byte of hirin
firing, and promotion data accumulated since the company's incorporation in 1998. Project Oxygen shocked everyon
concluding that, among the most important qualities of Google's top employees, technical skills such as science,
technology, engineering, and mathematics expertise came in dead last. The seven top characteristics of success at Go
are all soft skills:

Kimono
any webs

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News

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5 Soft Skills Developers Need to Succeed

You can code your heart out but that will take your career only so far. One IT leader shares what he looks for in IT rising stars.

As more IT professionals shift from being backroom techies to valuable business partners, the time is now for them to carefully hone their soft skills. After all, being the best programmer or smartest developer can only take an IT professional so far. Knowing how to communicate your needs, negotiate new policies, and lead fellow team members are "soft" skills that can ensure a healthy career trajectory.

CAREER ADVICE | March 26, 2013 | 2

The Importance of Soft Skills

by Nina Ferraro

Like 0 Tweet 0 +1 0 Share Favorite 5

Scenario 1: Hacking into the mobile phones of celebrities

In 2014, anonymous individuals hacked into the online accounts of the mobile phones of more than 100 celebrities, including actress Jennifer Lawrence and model Kate Upton. Nude photos and other private photos were posted on the web. The hackers had allegedly broken into Apple's iCloud. Some of the celebrities whose accounts were hacked had previously deleted the photos on their physical devices and assumed that they no longer existed.

Breakout Discussion (5 mins)

- In this breakout discussion, discuss the ethical, legal, and social issues involved in Scenario 1.
- Choose someone from your table to discuss some of your ideas

Scenario 2: Racist remarks by San Diego Clipper's owner

In 2014, Donald Sterling, former owner of the NBA basketball team, the San Diego Clippers, made racist remarks about Black Americans that were recorded by his former girlfriend. Later she made her recording available to others, leading to extensive media coverage. As a result, Sterling was forced to sell the team.

Breakout Discussion (5 mins)

- In this breakout discussion, identify and discuss the ethical issues in Scenario 2. Should Sterling have been forced to sell the team? What are the privacy implications when someone close to you secretly records something you've said?

- Choose someone different from your table to discuss some of your ideas