

# CSE 403 Software Engineering

Course Introduction

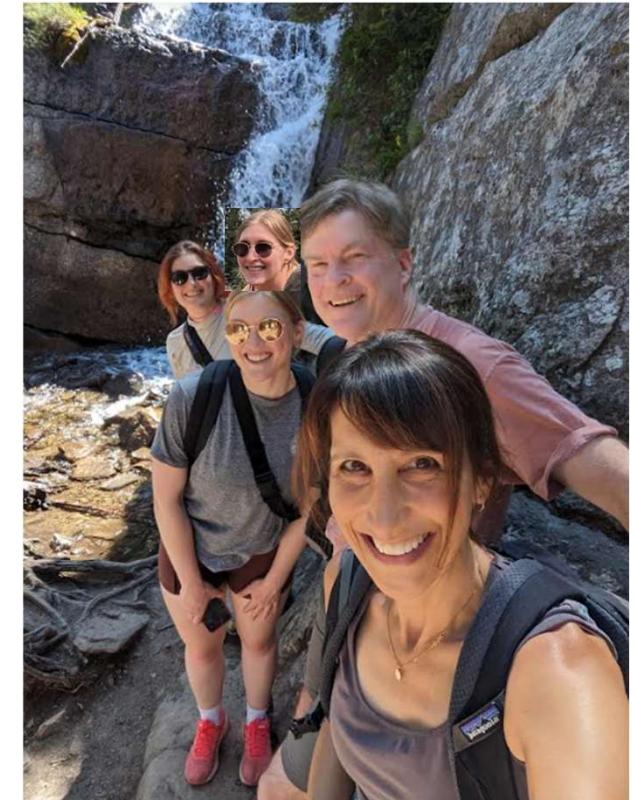
Winter 2026

# Today's Outline

- The CSE 403 staff
- What is software engineering
- Course overview and expectations
- Assignment 1 – project proposals

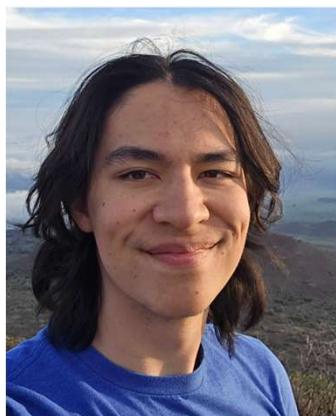
# About me

Gail Alverson, Ph.D., UW Affiliate Professor

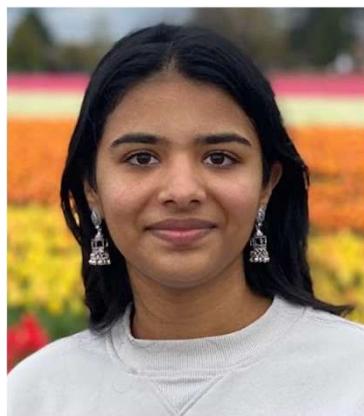


# About our Wi26 TAs

Graham Cobden



Medha Gupta



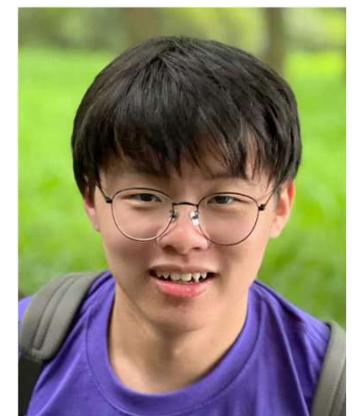
Hannah Potter



Srimedha Thummala



Yixuan Wang



# About Wi25 CSE 403 students

Let's hear about you!

# So just what is Software Engineering?

Consider what you, a software engineer, must do to **deliver** a product/service that **delights your customer** on an ongoing basis

# So just what is Software Engineering?

An **engineering discipline** concerned with the complete process of specifying, designing, developing, analyzing and maintaining a software system

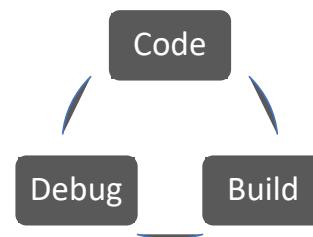
Software engineering tasks include:

- Requirements engineering
- Specification writing and documentation
- Architecture and design
- Programming (Just one out of many important tasks! 

UW CSE 403 Wi26

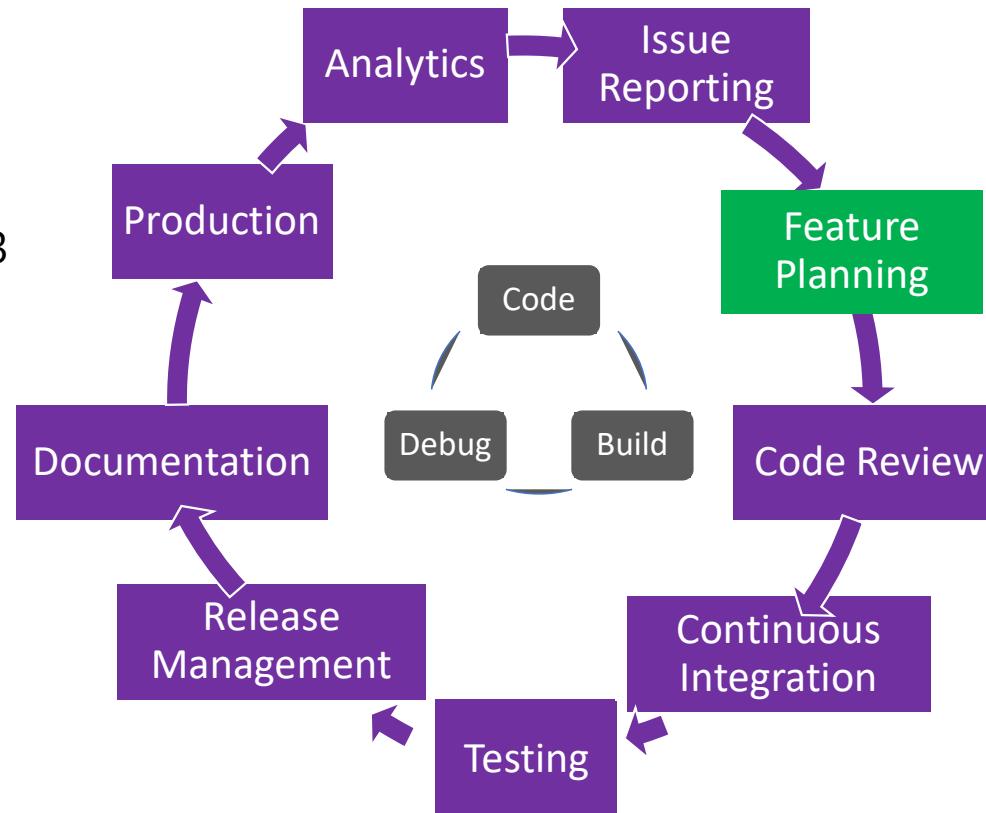
# Software Engineering in practice

CSE intro-level courses focus on the inner loop of software development



# Software Engineering in practice

Our focus in CSE 403  
is largely the outer  
loop



MSFT, Big Code Summit, 2019

# Why is Software Engineering important?

Software is everywhere -- our lives depend on it



Good software engineering allows us to **deliver**

# Why is Software Engineering important?

## **It is the path to a successful product**

- Decomposes a complex engineering problem
- Organizes processes and efforts
- Improves software reliability
- Improves developer productivity
- Improves delivery of a solution that delights the customer

# Course overview

# Course overview: topics

- **Learn software processes, requirements, and specification**
  - Range of software development processes
  - Precise capture of requirements and specifications
- **Advance your software development skills**
  - Decompose a complex problem and build abstractions
  - Improve coding skills
  - Effectively use version control, build systems, and code review
  - Continuously develop and integrate code collaboratively
- **Get hands on experience with software testing and debugging**
  - Effective, complete, and automated tests
  - Modern testing and debugging techniques
- **Learn to deliver a significant product as part of a technical team**

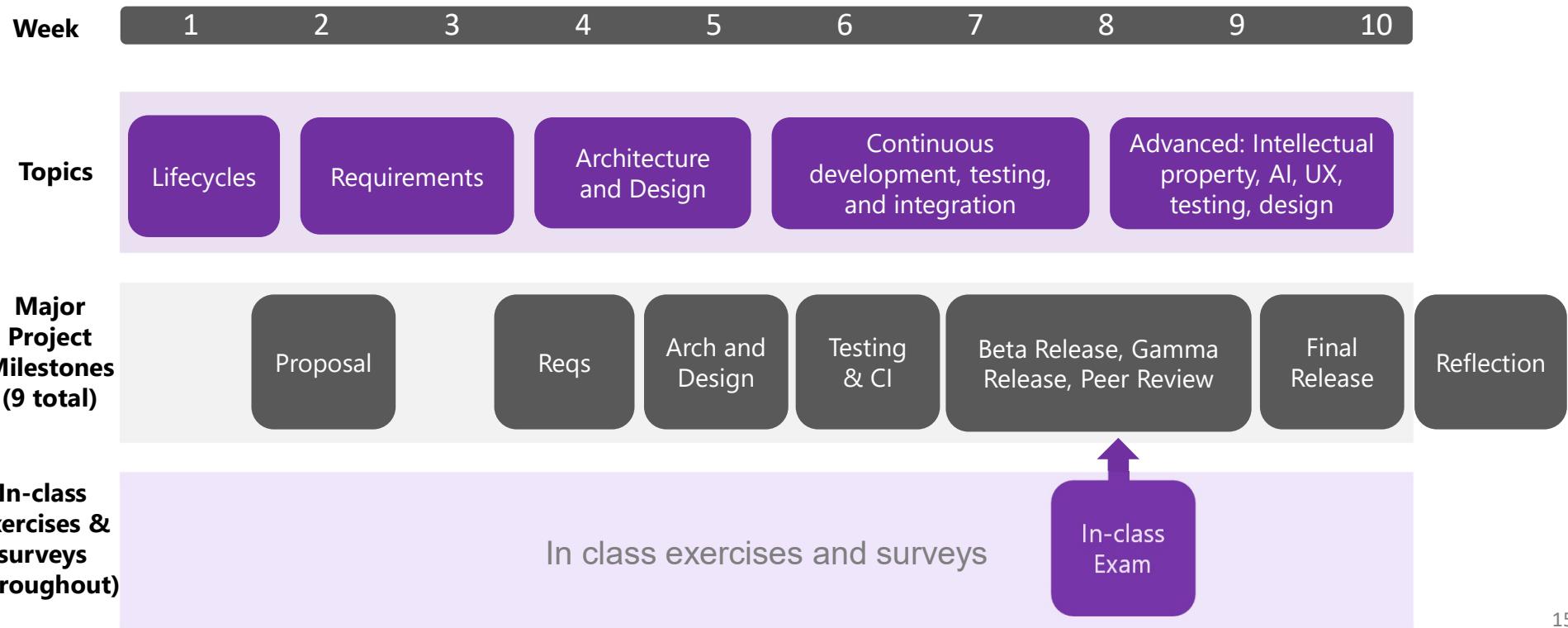
# By the end of the quarter, you'll have...

- Been exposed to some of the best software development practices in use today
- Understand how software is produced – from conception to continuous development and release
- Developed skills to effectively collaborate with others towards a common delivery goal
- Experienced the responsibilities, issues and tradeoffs involved in making decisions as software engineers



# Course overview: schedule

**Important:** See Calendar and Canvas for current details of topics and assignments



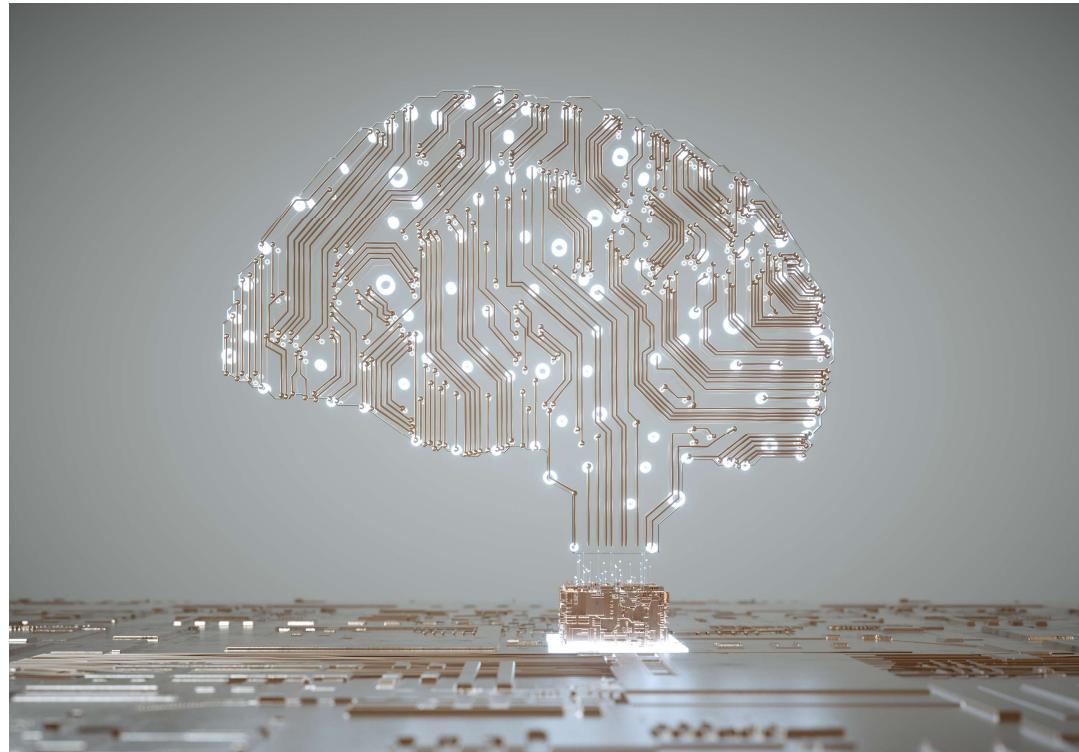
# Course overview: grading

- 60% **Project milestones** (small group/2-3, **team**, individual)
  - 10% : Beta release and final release
  - 50% : All others from proposal to reflection
- 15% **In-class exercises** (small group/2)
- 15% **Later-in-term exam** (individual)
- 10% **Participation** (individual)
  - Project team and meeting engagement
  - In-class polls, feedback-requests, Q&A, etc.

# Course overview: expectations

- Ability to program (in any programming language)
- Actively participate in discussions (in class, in teams)
- Take initiative and be accountable (to yourself, to your team)
- Commit to responsible teamwork and communication
- Reflect on experiences and continuously improve
- Go beyond adequate

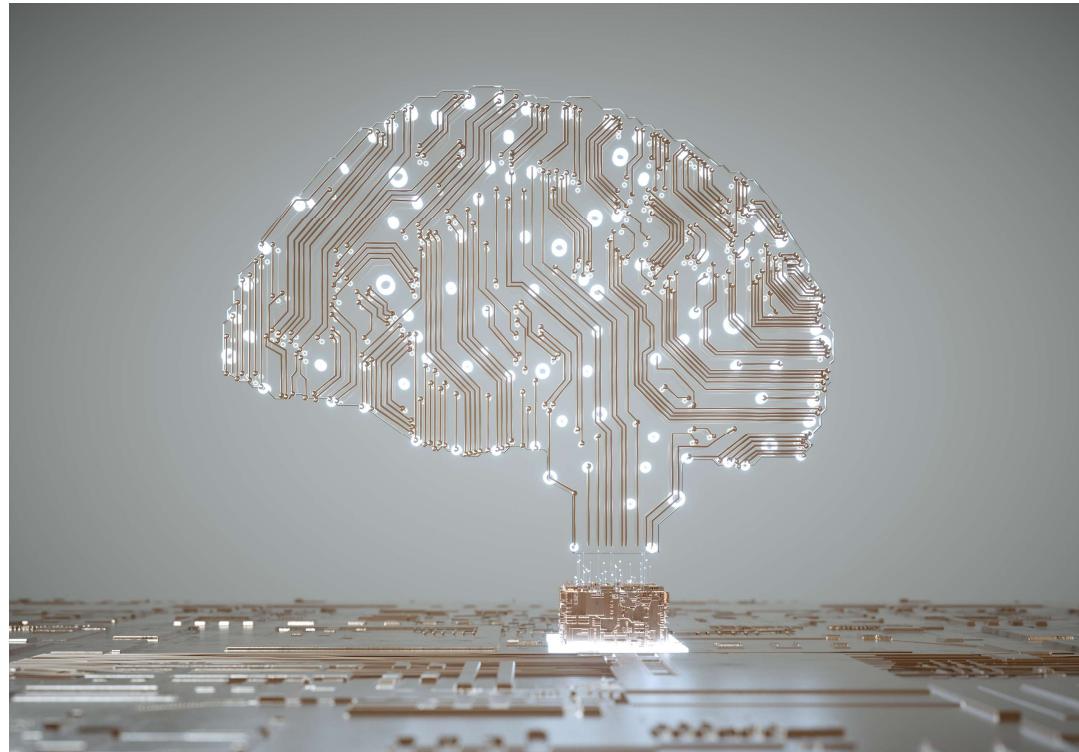
# Course overview: use of AI



# Course overview: use of AI

Two acceptable uses in CSE403:

1. Project code-generation
2. AI-assisted features in your project (backend component needed to enable a feature)



See policy section of course Syllabus

# Course overview: class material

Calendar  
↓

- Website:  
<https://courses.cs.washington.edu/courses/cse403/25wi>
- Class discussions and announcements (Ed):  
<https://edstem.org/us/courses/70255/discussion>
- Assignments and turnin (Canvas):  
<https://canvas.uw.edu/courses/1779835>
- Direct questions to staff:
  - [cse403-staff@cs.washington.edu](mailto:cse403-staff@cs.washington.edu)
  - Email or Ed Chat
- Office hours

CSE 403: Software engineering Home Calendar Project

## Welcome to CSE 403

Software engineering goes beyond software development. It involves planning, designing, building, and releasing and evolving that product. Software engineering requires a variety of skills, including problem solving, teamwork and communication skills. Get ready to learn software engineering, practice your technical skills, and ship a product!

### Meetings

- Lectures: Mon/Wed/Fri 12:30pm-1:20pm (CSE2 G10)
- Team meetings: Tue 1:30pm-2:20pm (CSE2 G10)
- Project meetings: Thu 1:30pm-2:20pm (CSE2 G10)

### Staff

- Instructor: Gail Alverson ([alverson@cs](mailto:alverson@cs)); OH: Wed/Fri 1:30pm-2:20pm (CSE2 G10)
- TA: Graham Cobden ([gycobden@cs](mailto:gycobden@cs))
- TA: Medha Gupta ([medhag2@cs](mailto:medhag2@cs))
- TA: Hannah Potter ([hkpotter@cs](mailto:hkpotter@cs))
- TA: Srimedha Thummala ([st82@cs](mailto:st82@cs))
- TA: Yixuan Wang ([yixuan19@cs](mailto:yixuan19@cs))

TAs hold office hours by appt; send email listing several times and days

### Syllabus and Project

- [Syllabus](#) - course description, format and policies
- [Course project](#) - overview

# The project and assignment 1

What's the  
difference  
between a  
**PROJECT**  
and a  
**PRODUCT**

# The CSE 403 project

- This week you'll develop a project proposal and pitch it
- A subset will be selected to move forward (think, sharktank)
- You'll be assigned to a project team (you'll have input)
- The rest of the quarter, you'll work to develop the product with your team, with incremental deliveries including demos
- Weekly cadence:
  - Weekly milestone deliverable (due each Tues evening)
  - Tues section for team meeting
  - Wed project update report
  - Thurs section for project meeting with TA

# Some example products

The screenshot shows the SuiteRates app interface. At the top, there's a navigation bar with links: Home, My Groups, Join a Group, Create a Group, and Logout. Below that, a sub-navigation bar shows the group '7th Ave S. St. Patty's Party'. The main area is titled 'Add an Expense'. It has fields for 'Name' (Costco), 'Amount' (\$100), 'Due date' (1/2/07), and checkboxes for 'recurring?', 'Upload receipt', and 'notify?'. Below this, a table shows 'Members' (You, Tom, Joe, Nancy, Maria, Tammy, George, Chad, Mary) with their 'Weight (%)' (10, 5, 5, 85) and 'Amount' (10, 5, 5, 85). At the bottom, a 'post expense' button is visible.

- App to split roommate costs/payments

- Security browser plug-in to consolidate cookie management
- Plugin using AI to automatically add comments to code
- HowTheyVote tool to identify congress voting history
- Advanced music editor with search and splice capabilities

## DuoCode

DuoCode makes learning code more fun and accessible than ever. It caters to a diverse range of skill levels and needs. [Start learning today!](#)

**How-to**

[Sign up](#) or [Sign in](#) to get started! For a detailed user guide, please visit the [Help](#) page.

**Log In**



[Login](#)

[Don't have an account yet?](#)

[Create an account](#)

The screenshot shows a Java IDE interface. The code editor on the right contains a Java file named Main.java with the following code:

```

String[] strArray = {"Hello", "Hi", "Hi", "string", "array"};
String[] strArray2 = {"Hello", "Hi", "Hi", "string", "array"};
int[] intArr = new int[5]; intArr = {0, 2, 4, 6, 8};
int sum = 0;
for (int i = 0; i < 5; i++) {
    intArr[i] = i + 2;
    sum += intArr[i];
}
System.out.println("Sum is " + sum);
    
```

The debugger on the left shows a stack trace for a main method. The variable table at the bottom shows the following data:

Object	Method	Value
HelloWorld(id=482)	main	64 0
String(id=483)	args	String[5]@1942
String(id=484)	strArray	String[5]@1942
String(id=485)	strArray2	String[5]@1942
int(id=486)	intArr	int[5]@1942
int(id=487)	sum	10
Student(id=488)	students	Student[3]@1942
Student(id=489)	studentList	Student[4]@1942
boolean(id=490)	booleanArray	boolean[4]@1942
String(id=491)	stringArray	String[4]@1942
String(id=492)	greeting	String@1942

- DuoCode (inspired by Duolingo) to learn coding

- Plugin to view history of variables

# Common challenges for students

- Creativity in product pitches
  - Encourage moving beyond social-networking product ideas
  - Avoid online gaming given the development process can differ from class milestones
- Teamwork
  - Effective communication and coordination (#1 challenge)
  - Different backgrounds, skills, and incentives
- Complexity
  - Tooling and technology stacks
  - Scale of development team, code base and code integration
- Uncertainty
  - Trade-offs, decisions, and justifications

# Assignment 1 – Project proposal

- Prepare a project proposal in teams of 2-3
  - Use today and tomorrow's section to form a group  
**Identify your group via class form by Tues 1/6 11:59pm**
  - Think about a problem, a pain point, for some target customer set
  - Consider what's already in play and available
  - Describe your solution, its value proposition, and its high-level technical approach
- Turn in your proposal: Monday 1/12
- Present in-class and section: Tues-Thurs 1/13, 1/14, 1/15
- Rank your preferences: Thurs 1/15
- Answer questions from staff: Fri 1/16
- Learn your team and project! Tues 1/20 in section or before

See  
Calendar  
and Canvas  
for links to  
details

# One last but important piece of information

- Classroom emergency preparedness
  - Know your exits
  - Fire situation
  - Shelter in place situation

# Questions

# Additional material

# CSE 403 vs internship

There are many commonalities!

## Internship

- Get paid (usually)
- Get experience the real world and with real customers (+/-)

## CSE 403

- Get significant input on what is the product you'll deliver
- Get significant input on your role in its development
- Get detailed feedback and support with learnings encouraged

You typically have less control of your path in an internship and lots of control in CSE403 and both are valuable experiences