Introductions

99-520 Summer 25

Eduardo Feo-Flushing

- Built his biggest software hit in high school: a desktop app that "predicted" lottery numbers (spoiler: it just printed random()), but it sold surprisingly well.
- Heavy open source user
- Research focuses on deploying robotic systems in real-world environments.

Stephen Walli

- Open Source Ecosystem Team in the Azure Office of the CTO, Microsoft
- Adjunct Faculty at Johns Hopkins and CMU (Pittsburgh)

- Worked across the industry over 44+ years from customer to vendor, startups (my own) to large orgs like Microsoft & HP, nonprofits & consulting.
- I've built standards (IEEE, ISO) and worked in open source collaborations (Linux Foundation, Eclipse Foundation) for 35 years

Austin Henley

- Research on AI+developer tools

- AI researcher at Microsoft during the ChatGPT craze

- Spent 99 days at a startup

- Made video games during college

Nour Ali

- Graduated from CMUQ, Class of 2023

- Majored in Computational Biology, Minored in Cognitive Neuroscience

- I run the annual LifeLines Hackathon - Software that Saves Lives

LifeLines
Software that saves lives

Course outline

Join our Slack channel
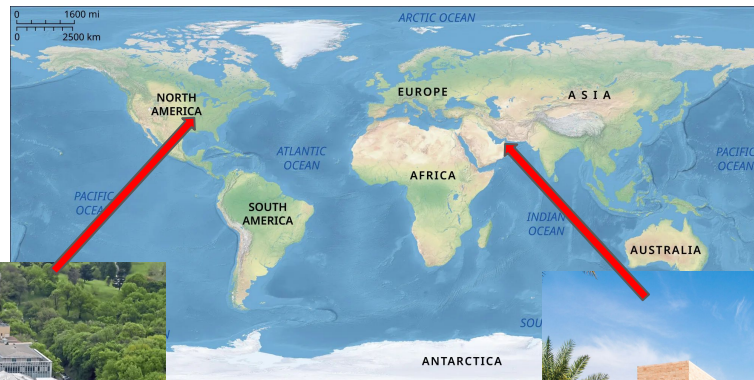

bit.ly/cmu-applied-seng-slack

Please introduce yourself!

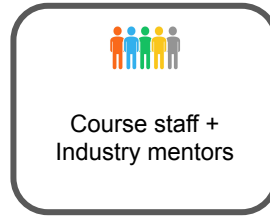Write a message on Slack (**#social)** to introduce yourself by answering these 5 questions:

- Name
- Location
- Major
- One software project you've contributed to (class, internship, open source, personal, … anything!)
- What's a fun fact about you that's not on your resume?

18 Students

18 Students

Course staff +
Industry mentors

7 Teams

Learning Goals

Gain hands-on experience working on a <u>real software</u> project for <u>real users</u>, in a <u>fully remote</u> setting, no simulations, just real-world collaboration across time zones.

Learn how software is actually built in the industry, navigating <u>messy requirements</u>, <u>distributed teams,</u> and real constraints, while applying <u>professional development practices</u>.

Understand <u>why</u> software engineering <u>practices matter</u> by facing the <u>unique challenges</u> of remote collaboration and making <u>real trade-offs</u> in a globally distributed team.

Critically evaluate and contribute to <u>key aspects of remote software projects</u>, including planning, communication, **<u>teamwork</u>**, quality, and evolving requirements.

Build essential **<u>communication skills</u>** for the <u>remote</u> workplace, clearly explaining your work, process, and decisions to teammates, mentors, and stakeholders across <u>geographic and cultural boundaries</u>.

Grading

Your course grade will be determined approximately as follows:

- 50% Participation
    - Includes attendance, presentations, team surveys, and individual journals.
    - Occasional misses won't impact full credit.
- 50% Process
    - Based on 360 team reviews and mentor feedback.
    - You will propose a final letter grade, discussed and finalized with course staff.
    - Mid-semester checkpoint for early feedback.

Course Outline

The course will consist of the following components:

- Remote sessions:
  - Monday, Tuesday, Wednesday
  - 8 - 9:20 AM (Pittsburgh)
  - 3 - 4:20 PM (Qatar)
  - These will be a mix of lectures, activities, and student presentations.
- Meetings
  - We expect you to meet with your project mentor 60 min a week as a minimum (if they want to meet more, that is ok)
  - Each team will also meet with the course staff for one meeting of ~15 min a week

Course Mechanics

- Most of the communication will happen via Slack
  - Join here: `bit.ly/cmu-applied-seng-slack`

- We will use our course website to distribute the material (coming soon)

Projects

Eclipse Foundation Projects

The Community for Open Collaboration and Innovation

The Eclipse Foundation provides our global community of individuals and organisations with a business-friendly environment for open source software collaboration and innovation. We host the Eclipse IDE, Adoptium, Software Defined Vehicle, Jakarta EE, and over 410+ open source projects, Headquartered in Brussels, Belgium, the Eclipse Foundation is an international non-profit association supported by over 360 members.

Eclipse Foundation Project Proposals

The Eclipse Foundation supports widely used and popular open source infrastructure. The have a series of projects they are mentor this summer. More info at the link below

- Build zero-copy UTransport for uProtocol
- Improve EE4J build infrastructure and stress test environment
- Enhancing Adoptium Temurin Software Supply Chain Security
- Adoptium PerfSavvy - Smart Adaptive Performance Testing Framework

Project Proposals Document for more details

Apache Lucene Projects

The Apache Software Foundation is at the heart of the open source community for a quarter century

The Apache Lucene™ project develops open-source search software. Lucene Core is a Java library providing powerful indexing and search features, as well as spell checking, hit highlighting, and advanced analysis/tokenization capabilities. The PyLucene sub project provides Python bindings for Lucene Core.

Apache Lucene Proposals

The Apache Software Foundation supports critical open source infrastructure projects. The Apache Lucene project is mentoring the following projects this summer. More info at the link below

Project Proposals Document for more details

OpenStack Projects

The Most Widely Deployed Open Source Cloud Software in the World

Deployed by thousands including Bloomberg and CERN. Proven production at scale. OpenStack is a set of software components that provide common services for cloud infrastructure.

OpenStack is developed by the community for the community.
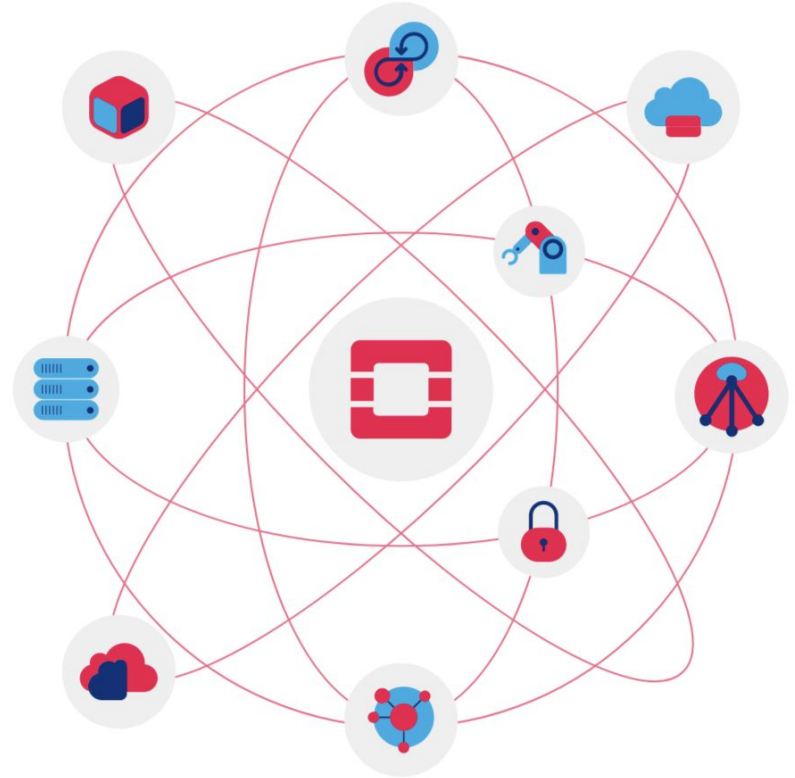
OpenStack Project Proposals

OpenStack creates cloud computing infrastructure. The have a series of projects they are willing to support. More info at the link below

- OpenStack Resource Controller (ORC) – This project has it all: Go-lang, Kubernetes, OpenStack, end-to-end testing, and API work

Project Proposal Document for more details

What These Open Source Projects Provide

- These projects are resume builders – your project work goes on your resume
- The mentors are industry employees (e.g., Red Hat, IBM, Microsoft) – you are working in the industry
- These projects are all open source licensed – you work is visible
- OpenStack is big in the telecommunications industry
- Eclipse Foundation projects are well known and well respected across the industry
- Apache Lucene is at the heart of industry search (including elasticsearch)
- Required skills are generally git, bash, Linux – you will learn the rest on the project

Action Items

- Join Slack!
- Read the [Project Proposals Document](#)
- Complete the project interest form by tomorrow
  - We will share it on Slack later today