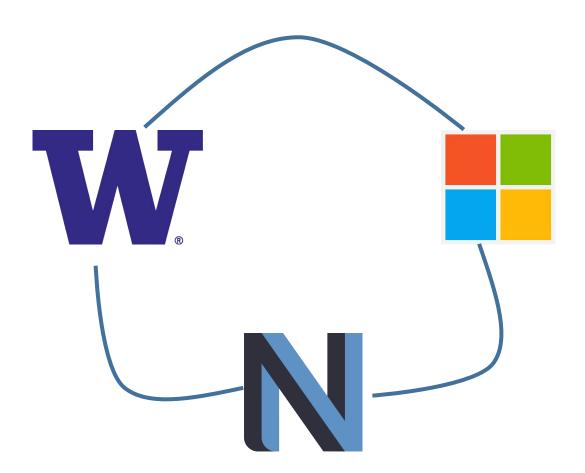
# CSE 550: Systems for All

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## Who we are

## Ratul









### **Emmanuel**

Ghana -> MIT -> Amazon -> UW ICTD

Research: Intersection of Systems ML & International Development w/ Kurtis Heimerl & Luis Vega (SAMPA Lab)

Hobbies: Biking, Kayaking, Cooking, Dancing! Dabbling in philosophy & nature photography

Fun fact: Once met Bill Gates while working on ML application in agriculture

at MSR



## Course structure

## CSE 550: Systems for All

- Quals course that covers foundational systems topics from:
  - Operating Systems, Networks, Distributed Systems, Databases
- No "real" prerequisites
  - Designed to allow first-year undergrads from other areas to engage
  - Functional knowledge of real systems will be helpful
- Gateway course to CSE 551, 552, and 561 or a terminal course for students desiring breadth
- Goal: A thorough understanding and appreciation of the work your systems colleagues are doing!

#### 1. Read papers

- Deeply read 1-2 per class
- Shallow reads (optional)

Check out: <a href="https://derekchia.com/how-to-read-a-research-paper-3-pass-approach/">https://derekchia.com/how-to-read-a-research-paper-3-pass-approach/</a>

- Deep read = All three passes
- Shallow read = 1<sup>st</sup> pass

#### 2. Discuss papers

- For each lecture, we will post a small set of questions on the assigned papers.
  - We'll create one thread per discussion question set.
  - You're required to add a comment to the discussion for each of the threads by 9am on the day of the class (to give time for everyone to read the responses before class.)
  - For each thread, pick one of the questions in the question set to answer.
- Free-form discussion

- 3. Lead paper's discussion in a group of 2
  - Sign up sheet on the course Web page

Ratul will do a short intro to the topic prior to that

#### 4. Projects

- Two programming/measurement assignments
  - Done in groups of 2 or 3
  - Meant to both clarify the nature of systems contributions as well as engage you in tooling issues (a defining feature of Systems)
  - Assignment #1 is already posted
- Project 3
  - Choose: Independent research project or in-depth assignment from us
    - Implement Paxos!
  - Same groups of 2 or 3
  - Both conclude with writeup of results.

No exams!

### Tools

- Canvas for projects/assignments
- Ed for discussions
- Slides posted on the Web page after the lecture
  - Adapted from Arvind and Kurtis
- Feedback: email/chat, mid-quarter eval, feedback.cs.washington.edu

### Office hours

- Opportunity to have more personal interactions with us
  - Ratul: On-demand by Zoom; around after class
  - Emmanuel: 4-5 pm Wed

## Grading

- Online discussions: 10%
- In-class discussion leading and participation: 10%
- First two projects: 25% + 25%
- Project 3: 30%

## Late policy, getting off-track

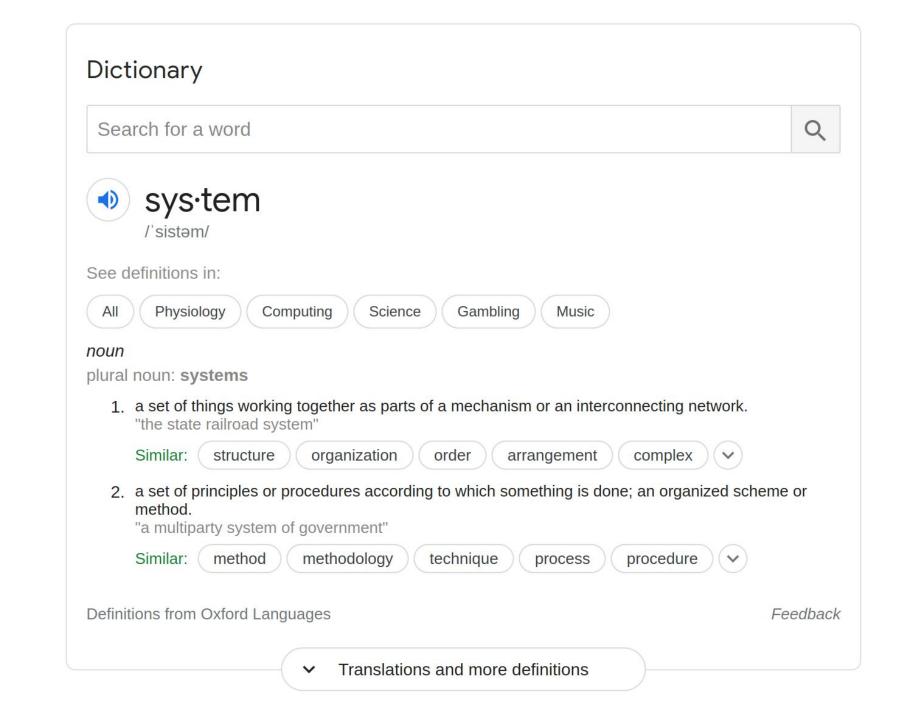
Each **person** gets three late days for reading responses.

If you projects/assignments will be late, reach out to us beforehand and we'll figure it out.

Special circumstances: Come talk to us.

# Questions?

## Course content



### Our focus

#### Software systems

Though the overlap with hardware is large!

Understand how software systems achieve a specific external behavior

• e.g., deliver videos, online social network, email, ML execution

### Comprises of many components

- Components interact and cooperate to provide overall behavior
- They typically have (well) specified interfaces

Large-scale, running across thousands or millions of hardware devices

## Let's build a social network together

Assume that you have computer hardware

## Common themes across systems

Correctness – does it work as advertised?

Reliability – stay functional as components fail

Performance

Scalability

Efficiency

Security