



CS 106S Week 9 (Last Class)

What's Next? Recap, Boba Party, 106S++;

Ben Yan, Spring 2025

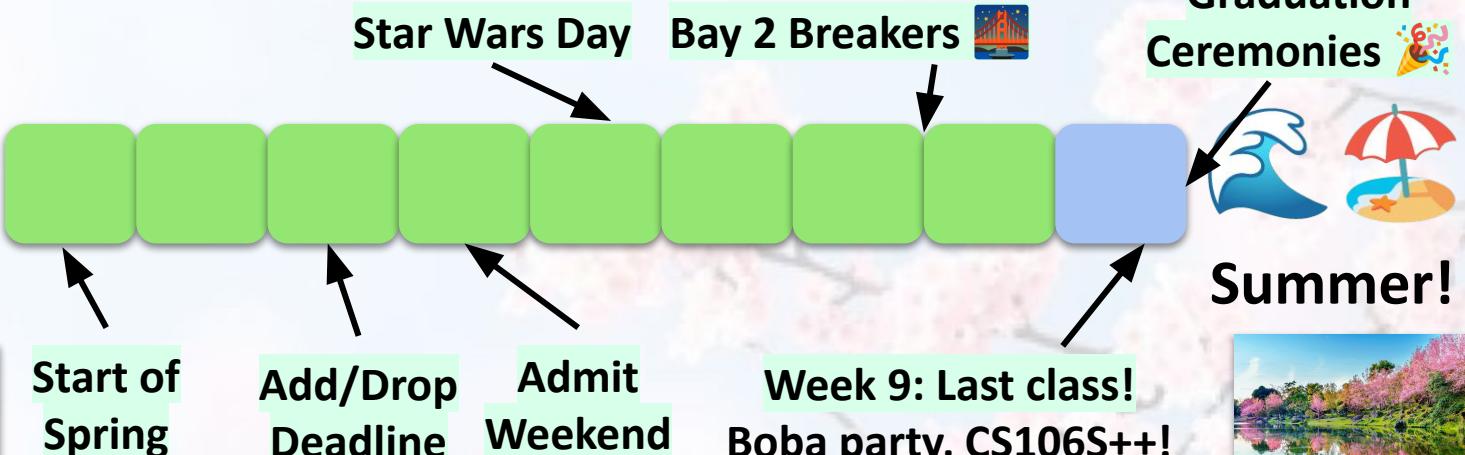
Welcome Back!



Spring



Start of
Spring



Summer!



We're here already!

A special shoutout to any graduating seniors — congrats!

Agenda for Today

- 1 boba party! 🍹Bubble Tea emoji (repeated 5 times) as promised :)
- 2 brief recap & discussion of the quarter
- 3 CS106S++; i.e. frontiers of CS & Social Good, general Stanford stuff, AMA questions
- 4 final check-off form and goodbye 🙌Hand waving emoji



Quarter Recap



CS 106S Coding for Social Good

Spring 2025

Lathrop 180

Thursday 4:30-6:20pm

[News](#)

[Schedule](#)

[Syllabus](#)

CS 106S is a survey course on the applications of fundamental computer science concepts from CS 106B to problems in the social good space (such as health, environment, cybersecurity, trust & safety). Some of the topics we will cover include satellite imagery, tumor classification with basic machine learning, sentiment analysis of tweets on refugees, and the ethical obligation of good security. We introduce JavaScript and the groundwork of web development, with no expectation of prior experience in these areas. The course ends, by tradition, with a bubble tea party on the last day. Recommended prerequisite/corequisite: CS 106B.

Week 1

Week 2

Week 3

```
10 const LOCALE = globalThis.navigator.language
11
12 const div = document.body.appendChild(document.createElement('div'))
13 const list = div.appendChild(document.createElement('ol'))
14
15 const dayNames = new Map()
16
17 for (let i = 0, i_7 = i; i < 7; i_7 += 7) {
18   const d = Temporal.PlainDate.from({
19     year: Temporal.Now.plainDateISO().year,
20     month: i,
21     day: i + 1,
22   })
23
24   dayNames.set(d.dayOfWeek, d.toLocaleString(LOCALE))
25 }
26
27 for (const num of [...dayNames.keys()]).sort((a, b) {
28   list.appendChild(Object.assign(
29     document.createElement('li'),
30     {textContent: dayNames.get(num)}))
31 })
```

JS

Intro to JavaScript
and Ciphers

Coding for Social Good

The programming /
coding-heavy half

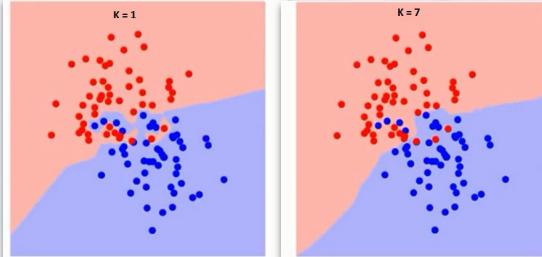


Sentiment Analysis
& Refugee Tweets



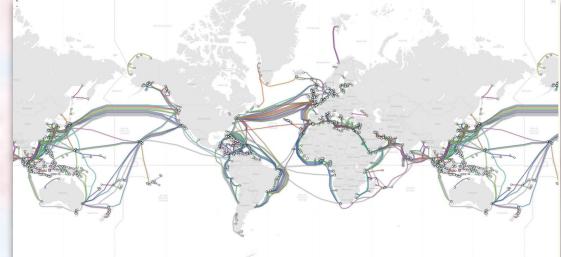
CS for Climate Change:
Google Earth Engine

Week 4



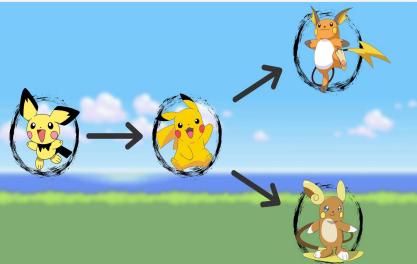
Cancer Detection with
K-Nearest Neighbors

Week 5



Cybersecurity & Ethical
Hacking

Week 6



Open Source & Web Software

Week 7



(Optional) Trust & Safety

Week 8



Mental Health:
ELIZA Chatbot

Coding for Social Good

The social / more reflective half, I think

Week 9



Boba Party & What's Next? (i.e. 106S++)

And that's a wrap!



A soft-focus photograph of cherry blossom branches with pink flowers, serving as a background for the text.

cs106s++;

Plenty of Majors & Programs Out There

majors.stanford.edu/majors



Computer Science



Creative Writing >



Earth and Planetary Sciences >



Earth Systems >



Linguistics >



Management
Science and
Engineering >



Data Science >



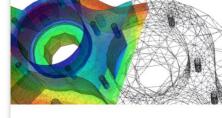
Data Science &
Social Systems >



Economics >



Education >



Mathematical and
Computational
Science >



Mathematics >

<https://majors.stanford.edu/majors>

CS Coterm MS Program

Earning a **MS degree in Computer Science**, at the same time as earning your BS degree!

- Roughly the same as **4+1 / 4+2 programs** at other universities—e.g., I'm "slow-terming"
 - 4 undergrad ('20–'24), 2 MS ('24–'26) years.
 - 6th year incoming haha :)
- Stellar flexibility with your undergrad – I've met **X Major + CS co-term for essentially any major you can think of**, e.g.,



*"Wait didn't you graduate?"
"Didn't you?"*

Math

Sym Sys

English

Political Science

Geophysics

Music

TAPS

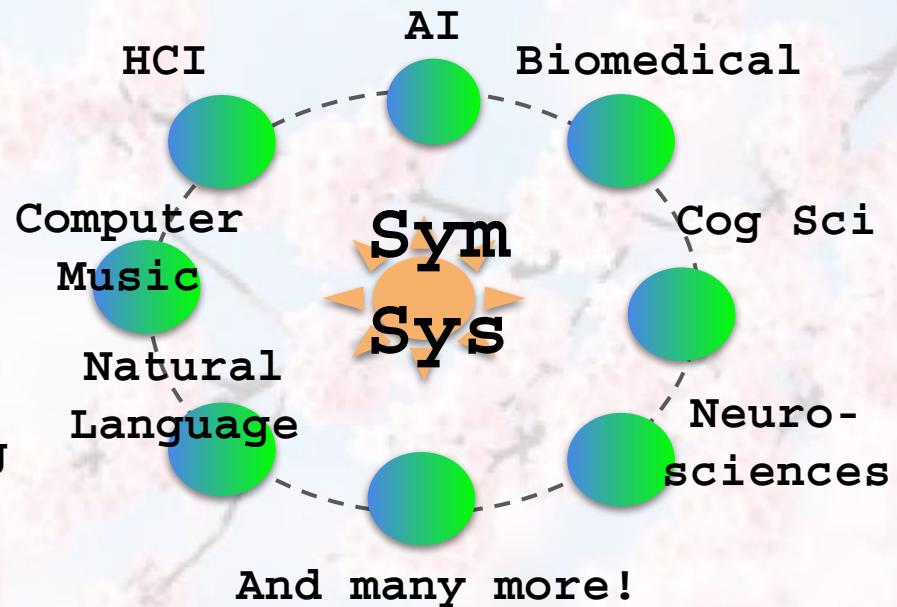
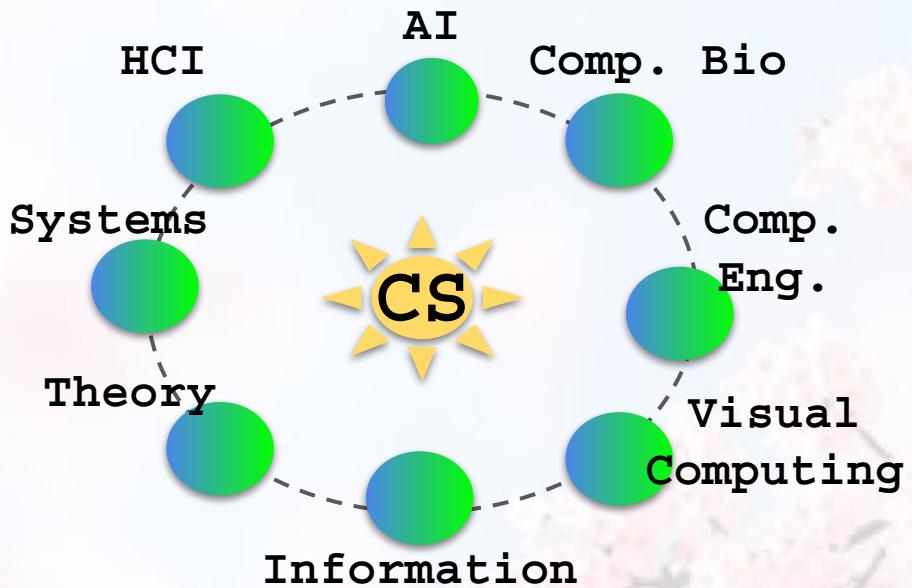
Biology

Electrical Eng.

And many more!

Major Tracks / Concentrations

Though you may not be planning to major in **CS or Sym Sys** (usually the two most popular majors taking this course), the broad areas still might be of interest to you!



Artificial Intelligence

Note: Course mentions don't necessarily equate to endorsements lol, though I do encourage exploration and seeing what you like and may want to specialize in!

- Logic, probability, statistics, mathematical models, language & reasoning, etc.
- Courses include: CS 124, CS 221, CS 229, CS 224N, CS 224R, CS 231N, etc.
- The most popular track for CS — by quite a margin!

**Natural Language
Processing**

Robotics / RL

Computer Vision

Machine Learning



Human-Computer Interaction (HCI)

- Interdisciplinary track that delves into how people interact with and use computational devices (e.g., handheld electronics, laptops, supercomputers)
- Emphasis on **user-centered design** and “front-end” programming, e.g.,

Creative & Informative Visualization

Easy-to-use & accessible UI/UX

Collaboration

- Courses include: CS 147 (Intro to HCI Design), CS 278 (Social Computing), and the CS 247s (e.g., Design for AI, Design for Behavior Change, Design for Play)



Computer Engineering

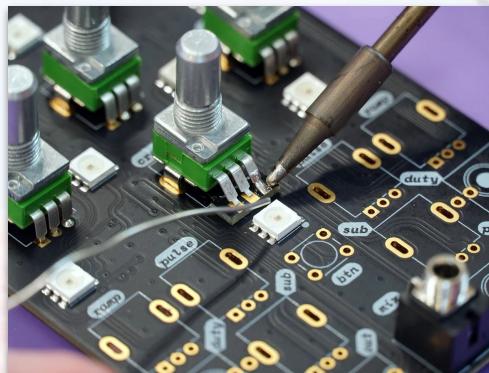
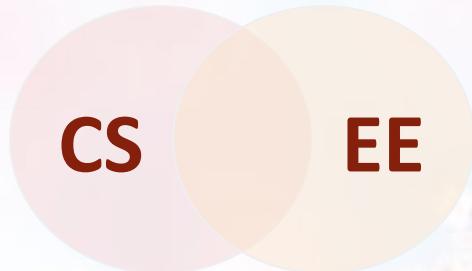
- Intersection of software and hardware, or CS & EE.
- Three principal areas:

(1) Networking

(2) Digital Systems

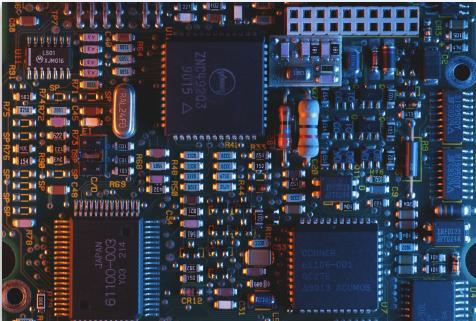
(3) Robotics & Mechatronics

- Courses include: EE108 (Digital Systems Design), EE180 (Digital Systems Architecture), EE271 (Intro to VLSI Systems)



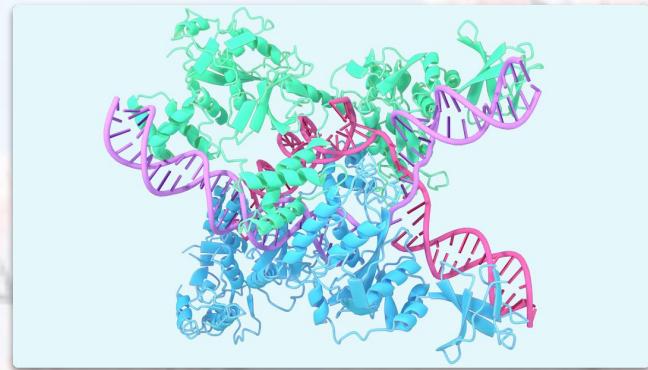
Computer Systems

- Design and implementation of compilers, databases, operating systems, networks, cybersecurity infrastructure (**i.e. memory, pointers, bit and bytes**)
- Relevant Classes – CS107: Computer Organization & Systems , CS111: Operating Systems Principles, CS 155: Computer & Network Security, CS143: Compilers



Computational Biology

- CS applications to biological and medical informatics areas, “Pre-Med + CS”
- **AlphaFold** – predicting the complex 3D structure of proteins from their amino acid chains. Has been used to predict COVID protein structures, and touted as the next big thing in drug discovery 🧪.
- Also, as a side quest, AlphaFold won the Nobel Prize in Chemistry 2024.
- **Courses include** – CS173A (Comp. Human Genomics) & CS279 (Structure & Org. of Biomolecules and Cells)



Visual Computing: Graphics

Creation, manipulation, and analysis of visual stimuli via computers (images, videos, 3D geometry, animation, virtual universes, AR/VR technology)

- **CS148: Intro to Graphics** – a massively popular gateway class, and also fulfills a wealth of requirements across programs (WAYS-CE, CS elective, etc)

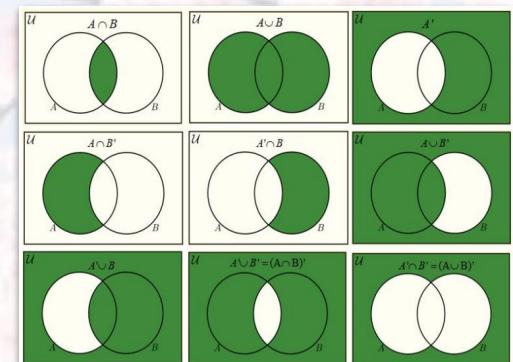
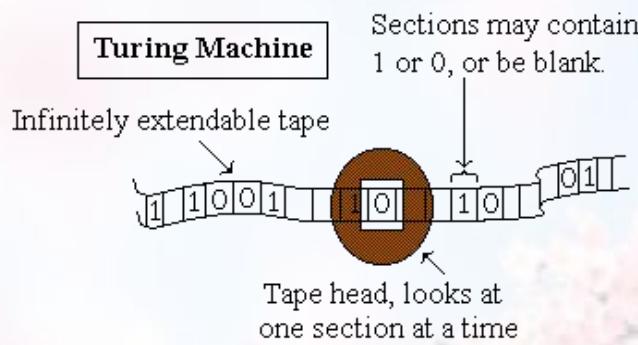


Images from Project Showcase at cs148.stanford.edu

- Other classes include CS 248A: Computer Graphics (Rendering, Geometry, Image Manipulation), CS 231N: Deep Learning for Computer Vision

Theory

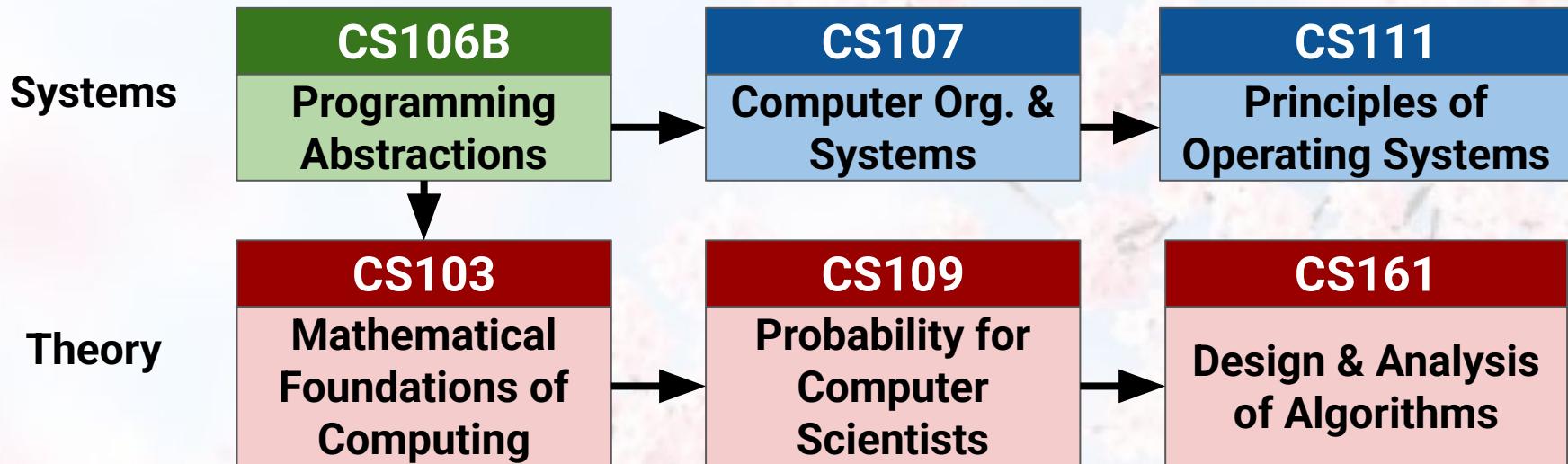
- **Fundamental techniques in computation**, their capabilities & limitations.
- Topics include **data structures** (e.g., red-black trees, Fibonacci heaps), **algorithms**, design & analysis of programs, and formal logic / mathematics
- Classes include: CS 103 ( **Math Foundations of Computing**), CS 154 (Theory of Computation), CS 166 (Advanced Data Structures)





Stanford Computer Science Core

- The nucleus of classes CS majors/minors/enthusiasts generally take.
- **None of them are a litmus test** if you're going to be a great computer scientist or not. You can be an amazing computer scientist without really liking systems, recursive backtracking, Huffman trees, etc.





Stanford CS + Social Good



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Stanford CS+Social Good

An organization of technologists, designers, and thinkers passionate about maximizing the benefits of technology and mitigating its harms.

[Look at Our Past Work](#)



Upcoming Events

[Events GCal](#)

[cs4good.com](#)



Research

This site lists research opportunities for undergraduate and masters students in computer science or which apply computer science in other fields. It also organizes the CURIS Summer Internship research program.

[Getting Started in Research](#)

[View listings for department projects seeking undergraduate and master's students during the academic year \(no research units, hourly pay or](#)

[CURIS Summer CS Internships](#)

[Learn about CURIS summer internships paid internships in which undergraduate students work with a CS faculty member and their peers towards an identifiable research result.](#)

[CURIS Fellowships](#)

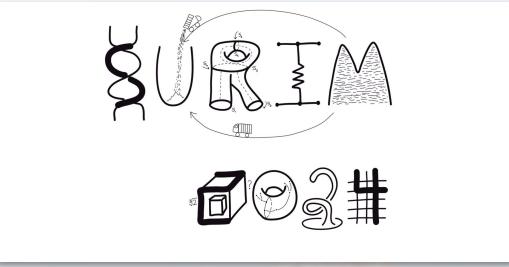
[Learn about CURIS Fellowships, which provide guaranteed funding for CURIS summer internships. The fellowships aim to provide early research](#)

[PURE: Paid Undergraduate Research Experience](#)

[Learn about the PURE program, which offers paid research opportunities for FLI students throughout the academic year.](#)



CURIS (CS)



SURIM (Math)



CS+Social Good Fellowships



Sustainability, Engineering and Science - Undergraduate Research (SESUR) Program



SESUR (Earth)



Cardinal Quarter

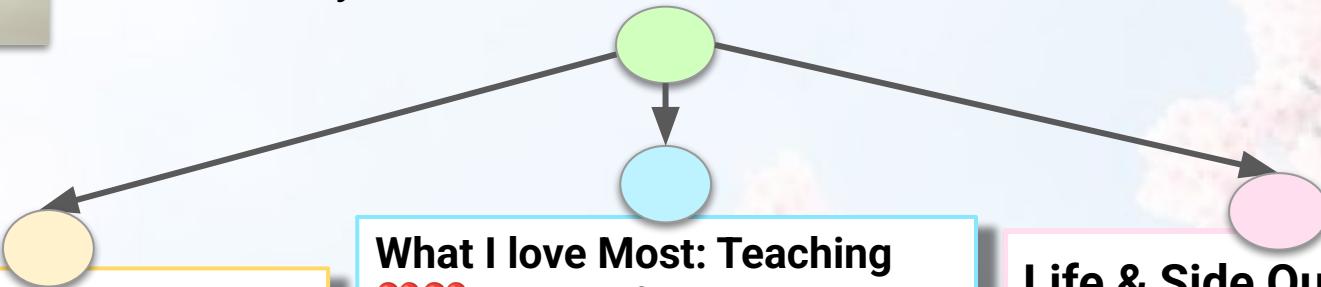
And many more summer programs / labs that accept students across majors!

[Stanford AI Lab \(SAIL\) Link](#) for students interesting in joining labs!



About Me / My journey of sorts

Probably should have left this to Lecture 1 but oh well ...



Stanford ('20→'24→'26)

- ♣ Majored in CS (AI) '24
- ♣ Also majored in Math cuz I'm indecisive af 🎉 😞
- ♣ Also minored in Creative Writing cuz poetry>>assembly
- ♣ Summary: i got cooked

♠ MS CS '26 (AI again 😞)
♣ My advisor is Jerry! which has done wonders for my life

What I love Most: Teaching

💔💔 Rejected first 2 quarters I applied to be a grad CS TA :(
❤️ 3rd time's a charm! Head TA of CS106AX (with Jerry) this fall 🎉
❤️ 2x TA now for CS107; just began this winter—i love it!
❤️ 5x taught the 1-unit wonder CS 106S – 36 students this term 🎉
❤️ SUMO math tutor, 2 years

Work Stuff

♠ Systems SWE (NVIDIA); CURIS after rejections 1st & 2nd year

Life & Side Quests

- ♦ From Minnesota 🏙, and hope to live in SF / Bay!
- ♦ Lived in Lantana, Kimball, Roble, EVGR, JRo (kinda)
- ♦ Oxford study abroad senior winter! (Creative Writing 🦄)
- ♦ Language learning (taking JAPANLNG 3 rn, Spanish)
- ♦ Love manga (JJK, CSM, Demon Slayer), Ace Attorney



My Lowlight Reel / Noteworthy Fails



This list is incomplete, you can help by expanding it Ben

- My first CS class (frosh Autumn 🍂) was CS109, which looking back was **kinda sus** – prereqs are CS106B, Math 51, and CS103 (soft)
- Nevertheless, Profs Lisa Yan & Jerry Cain made it very welcoming and it felt tough but doable. **But that wasn't the only CS class I took that quarter 😭.**
- Have you ever heard of a class called CS229 **👏: MACHINE LEARNING?** **👏 I wish I haven't. I got cooked.** Goodness, yeah, that still registers as one of the dumbest and most notorious mistakes I've made here.
- It was brutal. I'm an idiot. But surely I learned my lesson right —

There's More!

- My frosh year (on Zoom), I didn't realize there was a front page on the CS program sheet – and ended up taking CS107 before I took 106B. Wtf Ben
→ **How did that go?** Uhhhh
- Somehow, I was paddling above water (barely), until the bottom fell out on **Assignment 4: Into the Void**



Assignments Submitted	Days Late	Functionality Review
assign4: Into the void*	Sat Feb 20 23:54	3 25/92 permitted
assign5: Some Assembly Required	Sun Mar 07 23:59	2 41/84

And I collapsed even further in Binary Bomb and Heap Alligator :(

Overall Assignment percentage: 68.41%

- At the end of that winter quarter, I passed just half my units, which was quite demoralizing ngl. A lot of time was spent mounting a desperate comeback in 107 (I think 106B would have helped hmm 😞).



More!



- I was a **Physics** major at one point – if you can believe it, which ended spectacularly badly, partly due to Stats Mech.
- Still **surprised I got to the finish line** of my undergrad, definitely didn't seem that way for like a solid four years.

It's not flattering, but it's true that I took an entire year off from CS in undergrad, **taking no classes / mentally giving up.**

- **Aight, that's most of it lol (for now)**, not trying to elevate academic self-sabotage into an art form :(



Hope



- **On the bright side**, I later took CS110 (predecessor to CS111) with Jerry, and some friends. The topics (e.g., Unix filesystems, HTTP web servers) really appealed to me, and the class & Jerry greatly healed my confidence.
- 3 years later or so, **I'm still figuring out what kind of CS I really want to do lol.** There's plenty of areas I've decided I won't do well in.

But my dream is to become a full-time lecturer in CS somewhere, someday. But we'll see haha, fingers crossed, praying to the stars that things work out 🌟.

- I – and I'm sure many others – would not still be in my chosen field of study, if it weren't for **the compassion of students & others.**

I love teaching this 1-unit wonder, and **my students have given me so much joy.**

A screenshot of a mobile messaging application interface. At the top, there is a profile picture of a person with the name "benji.yan" and the text "42w". To the right of the name are standard messaging controls: a play button and three dots. The main message content is as follows:

Looks like I'm gonna graduate (somehow) yay 🎓

Dear Benjamin,

Your major minor course approval form has been approved for the following plans:

- Computer Science (BS)
- Mathematics (BS)
- Creative Writing (Min)

Hope



Bro survived past 107 🎉

36w 1 like Reply

— Hide replies

benji.yan still talking about 107 😭, nevertheless tsm and congrats on graduating!

36w Reply

@benji.yan can't erase lore

36w 1 like Reply

A friend **who really helped me power through 107** when I needed it (context: my IG grad post)

The 4 levels begin now. Good luck!
Level 1 disarmed. How about the next one?
Level 2 disabled. Keep going!
Level 3 disconnected. And lastly...
Level 4 deactivated. You are granted access to the master vault.
Congratulations! You solved all the levels!
Summarize your vault experience in one word:

Finally finished **Binary Bomb** (just 3 months ago 🌈), and it only took 4 years!

Dear Ben Yan,

You have been tentatively assigned (CA) to **CS106AX** this Fall quarter. Department reserves the right to course if the enrollment doesn't su

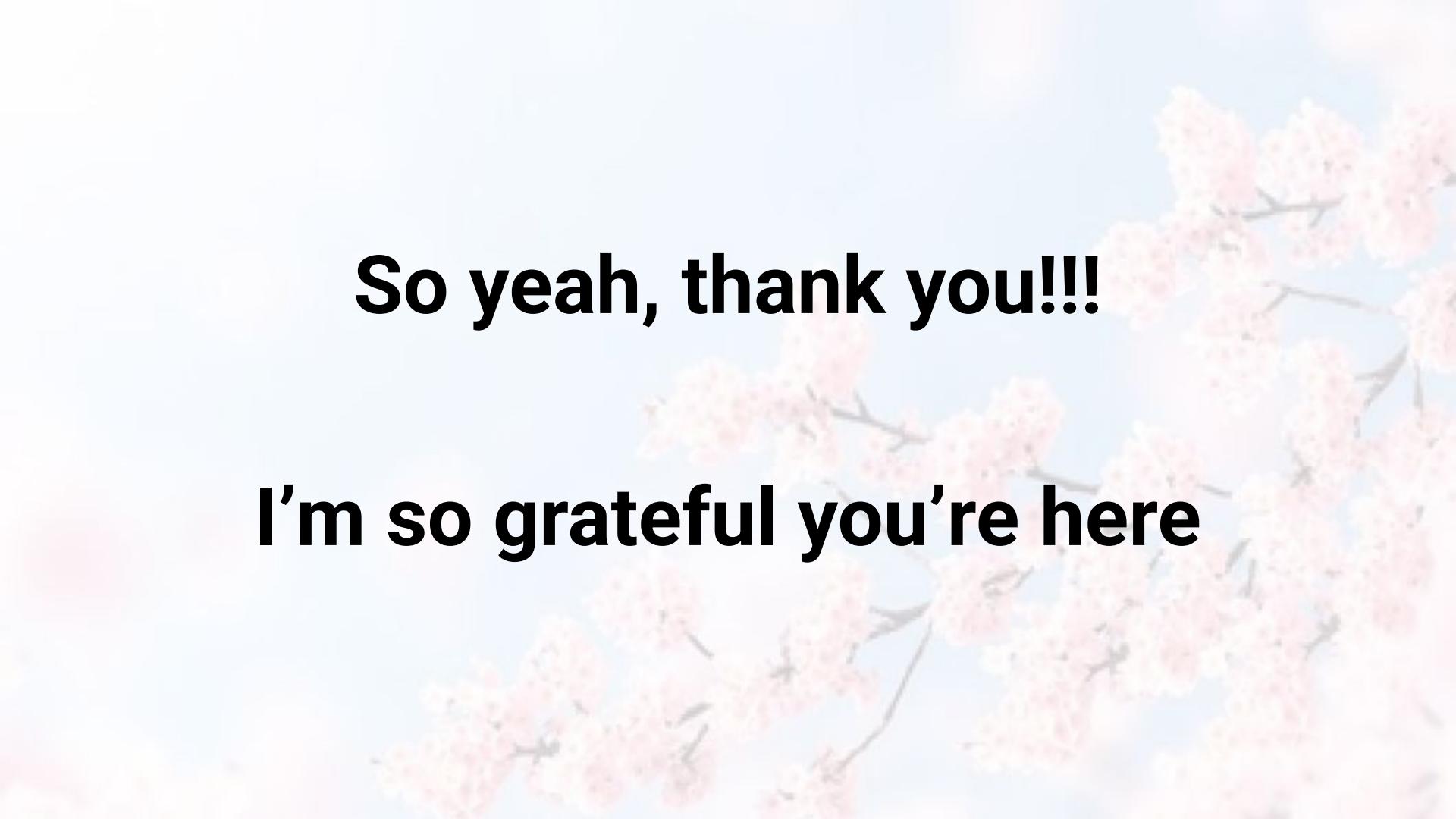
Dear Ben Yan,

You have been tentatively assigned (CA) to **CS107** this Winter quarter. Department reserves the right to course if the enrollment doesn't su

03/29/25 Welcome to CS106S! Sooooo excited for a fun quarter together 🌱. Our first class will be Thursday, April 3rd 2025, at 4:30 PM PT in [Lathrop 180](#).

So many blessings this year: got my first grad TAship with CS106AX, got a 2nd chance with 107, and had 3 wonderful classes (with a **record-large spring class** ❤️) for 106S

I have learned so much from ↘ teaching and from you.

A soft-focus background image of cherry blossom branches with pink flowers against a blue sky.

So yeah, thank you!!!

I'm so grateful you're here



With that, until next time friends – it's been a fun time



Feel free to reach out anytime at **bbyan@stanford.edu**, at **507-244-0751**,
IG: benji.yan, or in office hours! Happy to catch up and chat!



Course Eval

They'll release sometime soon I think – and I'd really appreciate and value your honest, anonymous feedback there when you have time! ❤️ That would help me and the course's future immensely.





Check-Off Form!

And lastly, a final **check-off form** (< 5 min) for attendance & feedback!

Click the “Check-Off Form” link in the **Week 9** section of cs106s.stanford.edu.

Have a wonderful rest of the quarter and summer break!



Thank you!!! ❤️