



Welcome
to
CSE 331

Let's do some introductions



http://www.zazzle.com/warning_teaching_assistant_bag-149882665435161818

TAs first



Ahana



Sebastian



Junyan



Mary



Wei



Adi



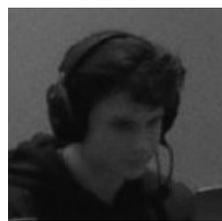
Mokshita



Harrison



Sabrina



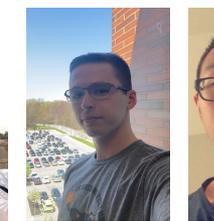
Caleb



Korey



Heba



Ryan



Billy



Trevor



Alex



Rrucha



Dylan

About Me

Atri Rudra



Just Atri please!

atri@buffalo.edu

Office: See piazza for location

Office hours: Mon, Fri, 1:00-1:50pm

OH start this Fri

Contact us all at



Or use piazza!

cse-331-staff@buffalo.edu

TAs will not respond to individual emails (except for re-grading requests)

Questions/Comments?



Handouts for today

Syllabus (online)

Syllabus Walkthrough video (online)

Homework Policy document (online)

Read the syllabus CAREFULLY!

CSE 331 Syllabus

Algorithms and Complexity

Fall 2023

Time and location: **Mondays, Wednesdays** and **Fridays, 11:00-11:50am**, [NSC](#)  201.

Under Construction

This page is still under construction. In particular, nothing here is final while this sign still remains here.

Please note

It is **your responsibility** to make sure you read and understand the contents of this syllabus. If you have any questions, please contact the instructor.

Acknowledgment

Once you have read the syllabus carefully, please fill in the Syllabus quiz on [Autolab](#). As an incentive for you to fill in this form, **you will not receive any feedback on your assignments till you successfully answer AT LEAST 18 out of the 20 questions in the quiz.** (You can attempt the quiz as many times as you want.) Note that in addition to this syllabus, the quiz will also ask questions based on the [homework policies](#).

In spirit of trust but verify

Syllabus Quiz

Options

[View handin history](#)

[Download handout](#)

 Due: **December 12th 2023, 1:29 pm EST (UTC -05:00)**

 Last day to handin: **December 12th 2023, 1:29 pm EST (UTC -05:00)**

No graded material will be handed back until you pass the syllabus quiz!

Academic Integrity

Question 1: Sharing my answers to this syllabus quiz with other 331 students

- Is OK if I do it to help out a friend
- It does not matter since there is no grade attached with it
- Is an academic integrity violation and should not be done
- Is an academic integrity violation but I can take the chance

Question 2: Penalty for academic violation in CSE 331 is an automatic

- warning and a chance to make-up
- [A zero in the assignment AND a letter grade reduction (for first violation across all CSE courses) and an F in the course (for 2nd violation across all CSE courses)] OR [If ChatGPT is involved then an F in the course]
- A zero in the corresponding assignment and nothing else

Accessibility Resources

Information included in the syllabus

In short, let me know and consult with Accessibility Resources

One Stop Shop for the Course

CSE 331 Syllabus Piazza Schedule Homeworks ▾ Autolab Project ▾ Support Pages ▾ channel Sample Exams ▾

CSE 331

Fall 2023

<http://www-student.cse.buffalo.edu/~atri/cse331/fall23/index.html>

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CSE 331 events

Today   Aug 20 – 26, 2023 ▾  Print **Week** Month Agenda ▾

	Sun 8/20	Mon 8/21	Tue 8/22	Wed 8/23	Thu 8/24	Fri 8/25	Sat 8/26
5am							
6am							
7am							
8am							
9am							
10am							

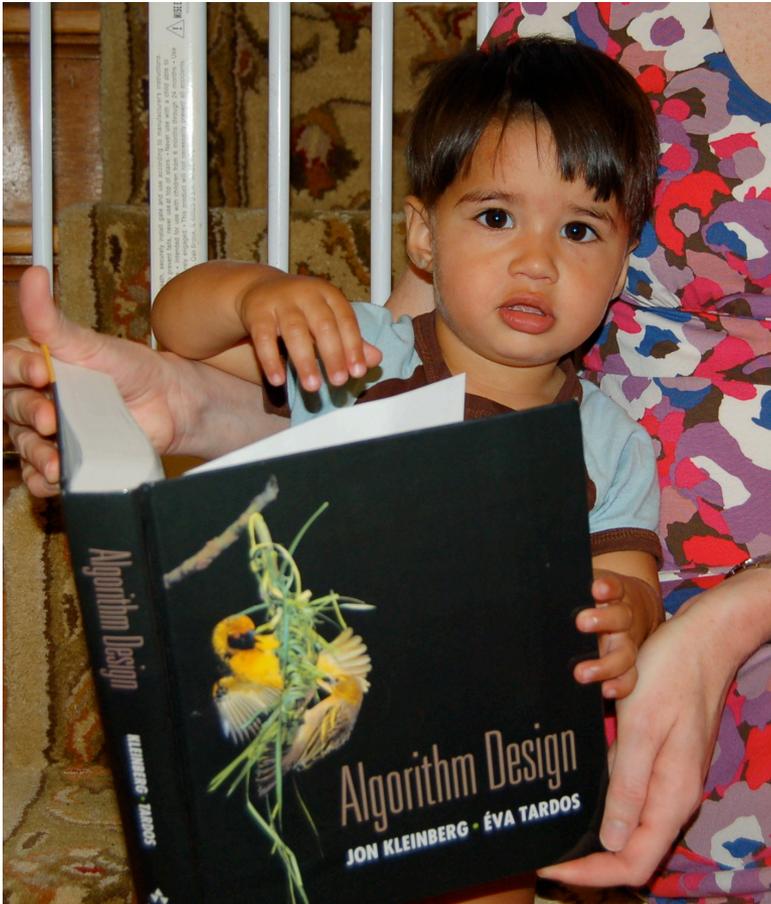
Three things to remember

WORK HARD!

DO NOT CHEAT!

READ CAREFULLY!

Wait.. What???



Make sure you follow submission instructions

Two most common ways
of losing points

Make sure you read problem statements carefully

Academic Dishonesty

All your submissions must be your own work

Penalty:

Minimum: A **grade reduction in course**

Possible: **F** (or higher penalty) if warranted

YOUR responsibility to know what is cheating, plagiarism etc.

If not sure, come talk to me

Excuses like “I have a job,” “This was OK earlier/in my country,” “This course is hard,” etc. **WON’ T WORK**

**I DO NOT HAVE ANY PATIENCE WITH ANY CHEATING :
YOU WILL GET A GRADE REDUCTION IN THE COURSE
FOR YOUR FIRST MISTAKE**

Withdrawing a suspect submission

Withdrawing a submission for academic integrity violation

Sometime mistakes can happen so you have the **option of withdrawing any of your Homework submission with 24 HOURS of the assignment deadline**. You can do this by sending Atri an email, e.g. by using the following template (thanks to [Oliver Kennedy](#) for providing us the template):

Email template for withdrawing submission

Dear Dr. Rudra/Atri,

I wish to inform you that I have violated CSE 331 policies on my submission for Question X on Homeworks/Assignment N. I wish to withdraw my submission to preserve academic integrity.

J.Q. Student
Person #12345678
UBIT: jqstuden

Sincerely, J

On receiving the above email, I will assign J a 0 on Question X on Homeworks/Assignment N but disregard any Academic Integrity issues with the problematic submission. Note that J is not required to present any details on how they violated academic integrity.

- - - - -

Use of ChatGPT is not allowed

AT

Why should I not use you to do my algorithms course homework?



While I can certainly help you understand concepts and provide explanations related to your algorithms course, there are several reasons why you shouldn't solely rely on me to do your homework:

1. **Academic Integrity:** Using external sources to complete your assignments without understanding the material yourself violates the principles of academic integrity. It's important to learn and demonstrate your knowledge honestly.
2. **Learning:** The primary goal of your course is to learn and understand the material. Relying solely on my answers without engaging with the material will hinder your learning and your ability to apply the concepts in real-world scenarios.
3. **Long-Term Retention:** Active engagement with the material, including struggling through problems and solving them on your own, enhances your understanding and retention of the content. Passive reading or copying solutions does not provide the same benefits.
4. **Exams and Practical Application:** If your course includes exams or projects that test your problem-solving skills, simply copying answers won't prepare you for those assessments. You need to be able to apply your knowledge independently.
5. **Conceptual Understanding:** Algorithms often involve complex concepts. Simply having an answer isn't enough; you need to understand why a particular approach works and how it relates to the broader context of the subject.

6. **Feedback and Improvement:** Making mistakes is an essential part of learning. When you attempt problems on your own, you can receive feedback from instructors or peers, which helps you identify areas for improvement.
7. **Career Preparedness:** Algorithms and problem-solving skills are often crucial in technical interviews and real-world applications. If you haven't practiced solving problems on your own, you might struggle in job interviews or when faced with practical challenges.
8. **Uniqueness of Assignments:** Homework assignments can vary in their requirements. If you rely on pre-generated solutions, you might miss out on tailoring your answers to the specific instructions of your assignment.
9. **Ethical Considerations:** While seeking help is acceptable, outsourcing the entire problem-solving process to an AI raises ethical concerns, especially if it's done to a degree that undermines the learning process.

It's okay to seek help and clarification on concepts, but make sure you're actively engaging with the material and attempting problems on your own. This will not only benefit your learning but also your overall academic and professional growth.

In spirit of trust but verify

TAs will have access to a database of ChatGPT answers to cross check

It's no fun failing any of you but **use of ChatGPT will result in an F**

Use of ChatGPT is not allowed

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Coding jobs will be done by AI



stacksort

In a [recent xkcd's](#) alt text, Randall Munroe suggested **stacksort**, a sort that searches StackOverflow for sorting functions and runs them until it returns the correct answer. So, I made it. If you like running arbitrary code in your browser, try it out.

Like (or hate) it? Comment on HackerNews

stackoverflow_sort(

Try a list of numbers, a string, a list of words or json.

);

Sort

var output =

Output from the function.

;

output console

Coding jobs will be done by AI

MIT News

ON CAMPUS AND AROUND THE WORLD

Browse

or

Search



 FULL SCREEN

Researchers have developed a flexible way of combining deep learning and symbolic reasoning to teach computers to write short computer programs. Here, Armando Solar-Lezama (left), a professor at CSAIL, speaks with graduate student Maxwell Nye.

Photo: Kim Martineau

Toward artificial intelligence that learns to write code

Researchers combine deep learning and symbolic reasoning for a more flexible way

It happened sooner than expected

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The Observer
ChatGPT

• This article is more than **4 months old**

Programmers, beware: ChatGPT has ruined your magic trick

John Naughton



The generative AI tool can write code on request, making the specialist skill of programming open to everyone



Sat 1 Apr 2023 11.00 EDT

[f](#) [t](#) [e](#) **934**

Advertisement

United Healthcare

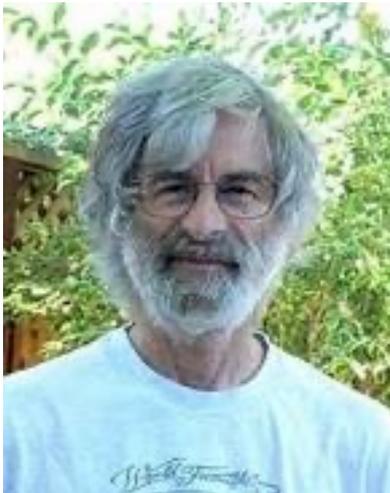
Complete a HouseCalls visit and earn up to a **\$15 reward**

[Learn more](#)

Must be enrolled in a qualifying UnitedHealthcare plan. HouseCalls may not be available in all areas. Rewards restrictions apply.

So am I doomed?

There will still be room for high level *algorithmic* thinking!



European Association for
Theoretical Computer Science

HOME ABOUT SEARCH CURRENT ARCHIVES

Home > No 125: June 2018 > **Lamport**

If You're Not Writing a Program, Don't Use a Programming Language
Leslie Lamport, Distributed Computing & Education Column by Juraj Hromkovic, Stefan Schmid

*Today, programming is generally equated with coding. It's hard to convince students who want to write code that they should learn to think mathematically, above the code level, about what they're doing. Perhaps the following observation will give them pause. **It's quite likely that during their lifetime, machine learning will completely change the nature of programming. The programming languages they are now using will seem as quaint as Cobol, and the coding skills they are learning will be of little use. But mathematics will remain the queen of science, and the ability to think mathematically will always be useful.***

Questions/Comments?



Any question on course policies?

note @9

stop following 35 views

Actions

Homework for BEFORE the Monday lecture

Sorry for not sending this earlier but to optimize the first two lectures I have put everything that I used to talk about the syllabus (in FA 22 and earlier) into two videos:

- [Walk through video- I](#)
- [Walk through video- II](#)

Please review the above videos before you come to lecture on Monday.

I will have a short Q&A for any questions y'all might have on the syllabus/course policies during the lecture on Monday but my expectation is that unless you ask a question, y'all have understood the syllabus and homework policies.

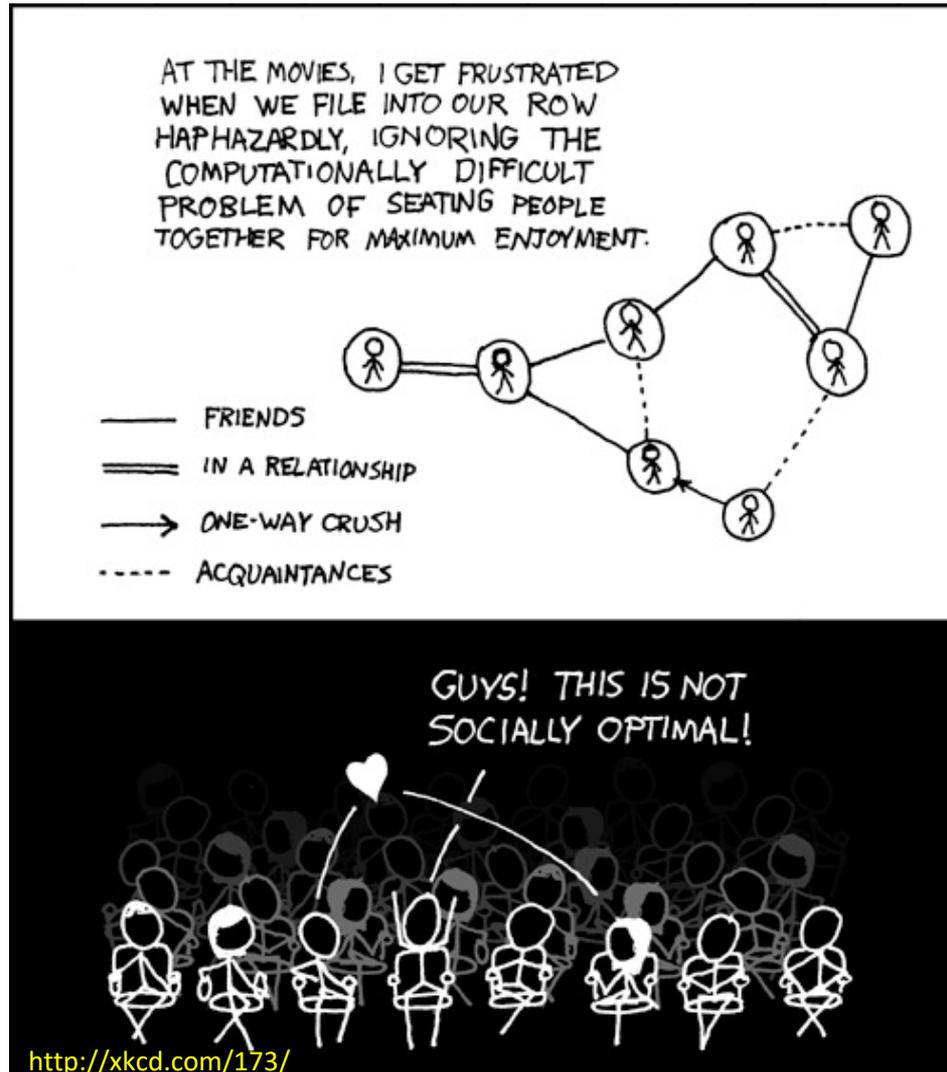
The [schedule page](#) also has links to the above videos as well as link to the slides (see the Notes column) in case that is of interest.

lectures

Edit good note | 0

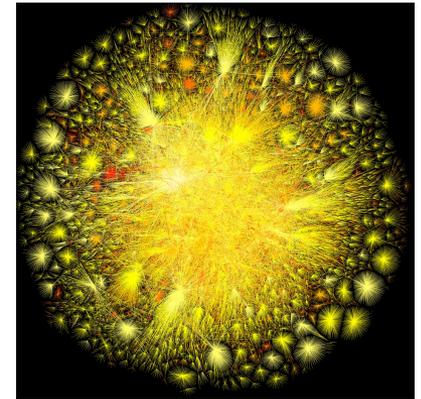
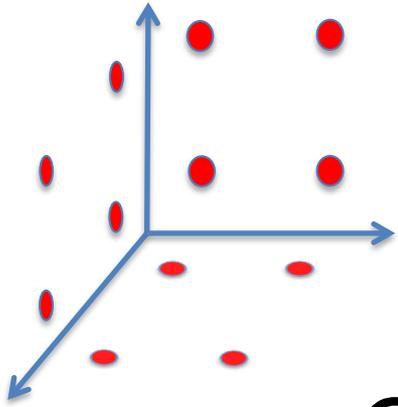
Updated 5 minutes ago by Atri Rudra

This course: how to solve problems!



Why should I care ?

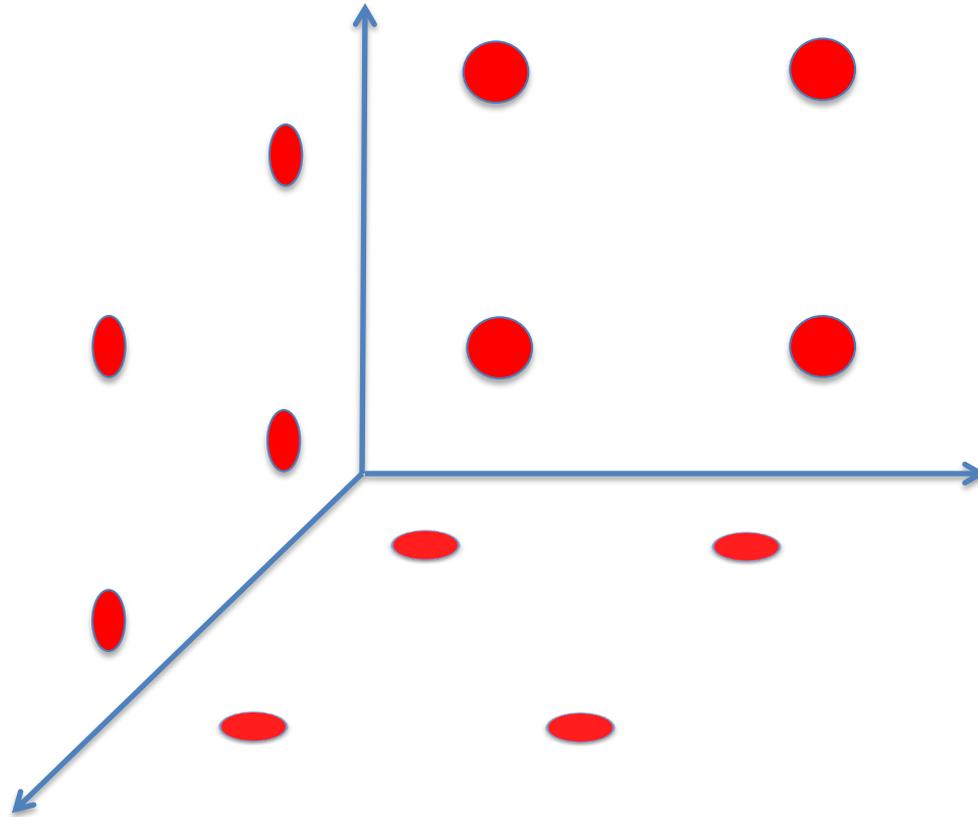




Combining Shadows to Understanding the network

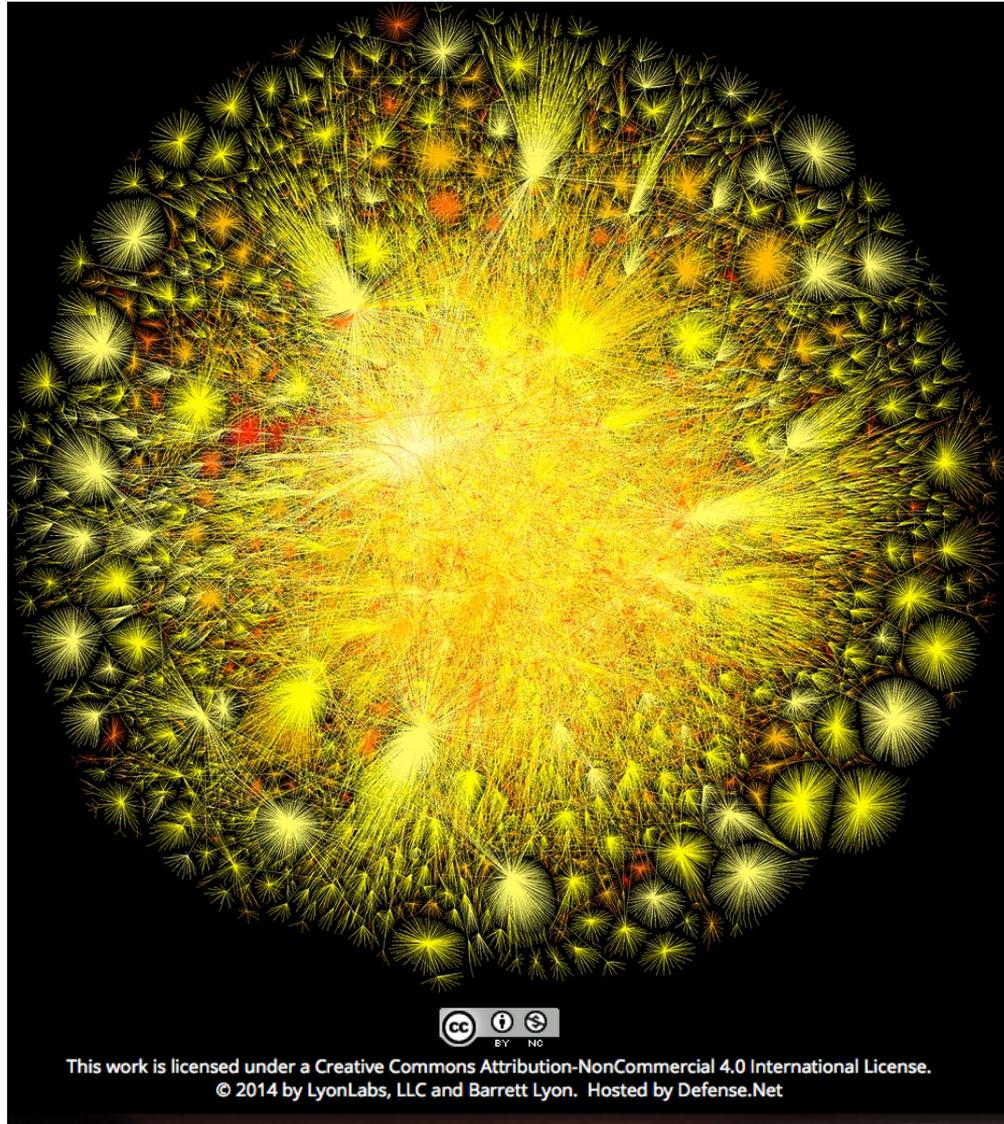


The key technical problem

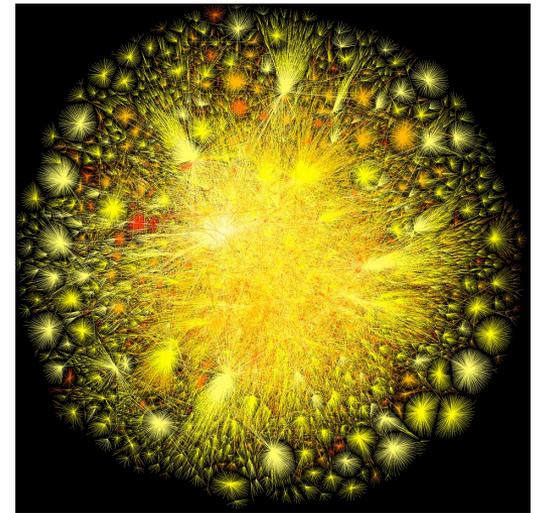
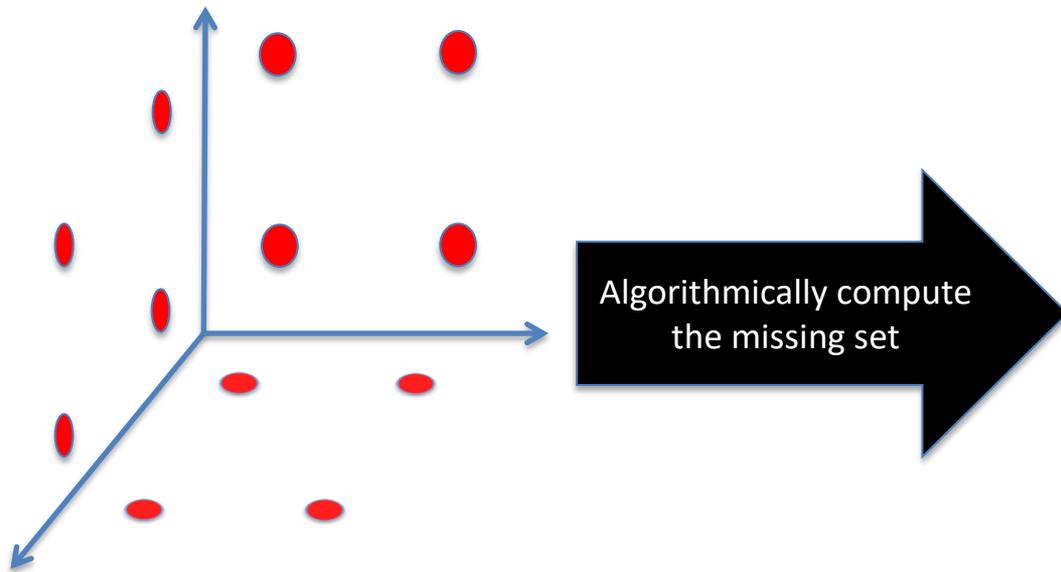


Given the three projections, what is the largest size of the original set of points?

Detecting Communities



Conquering Shadows to Conquering the Internet



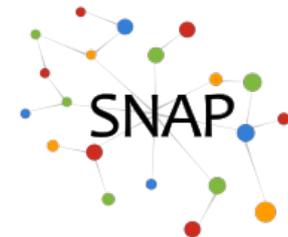
The proof is in the performance



EMPTYHEADED

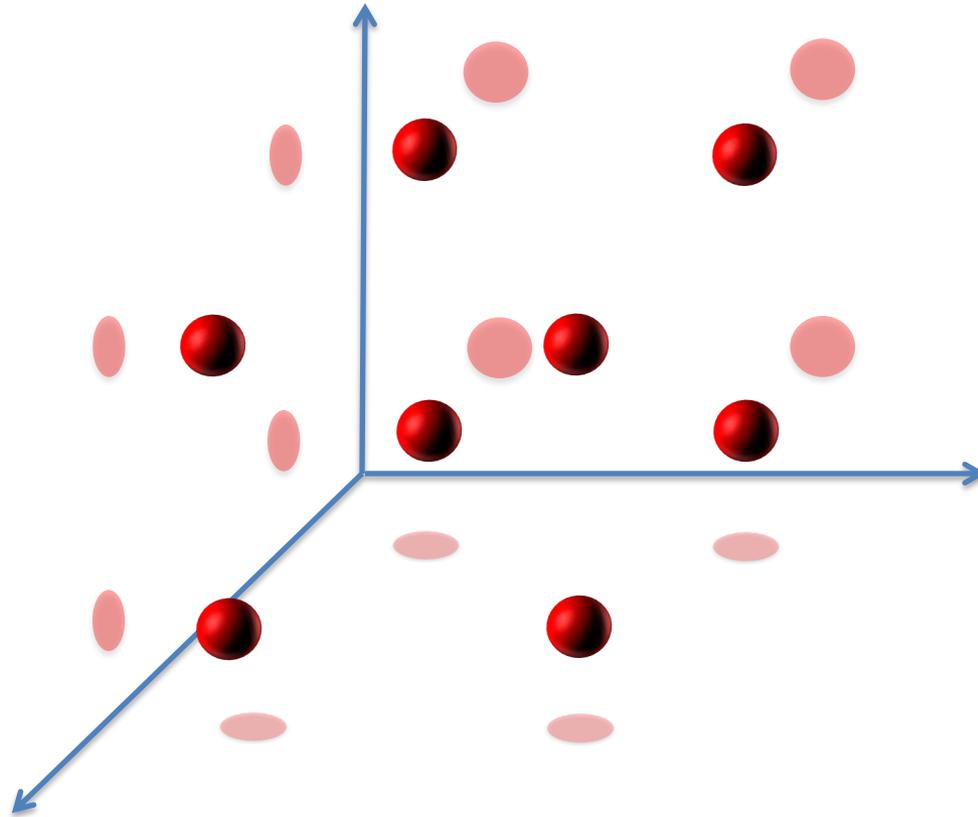


10x faster

A large, thick green arrow pointing from the left towards the right, indicating a comparison or transition.

Better algorithm with little hacking will beat a worse algorithm with tons of hacking

The key technical problem



Highly trivial: $4^3 = 64$

Still trivial: $4^2 = 16$

Correct answer: $4^{1.5} = 8$

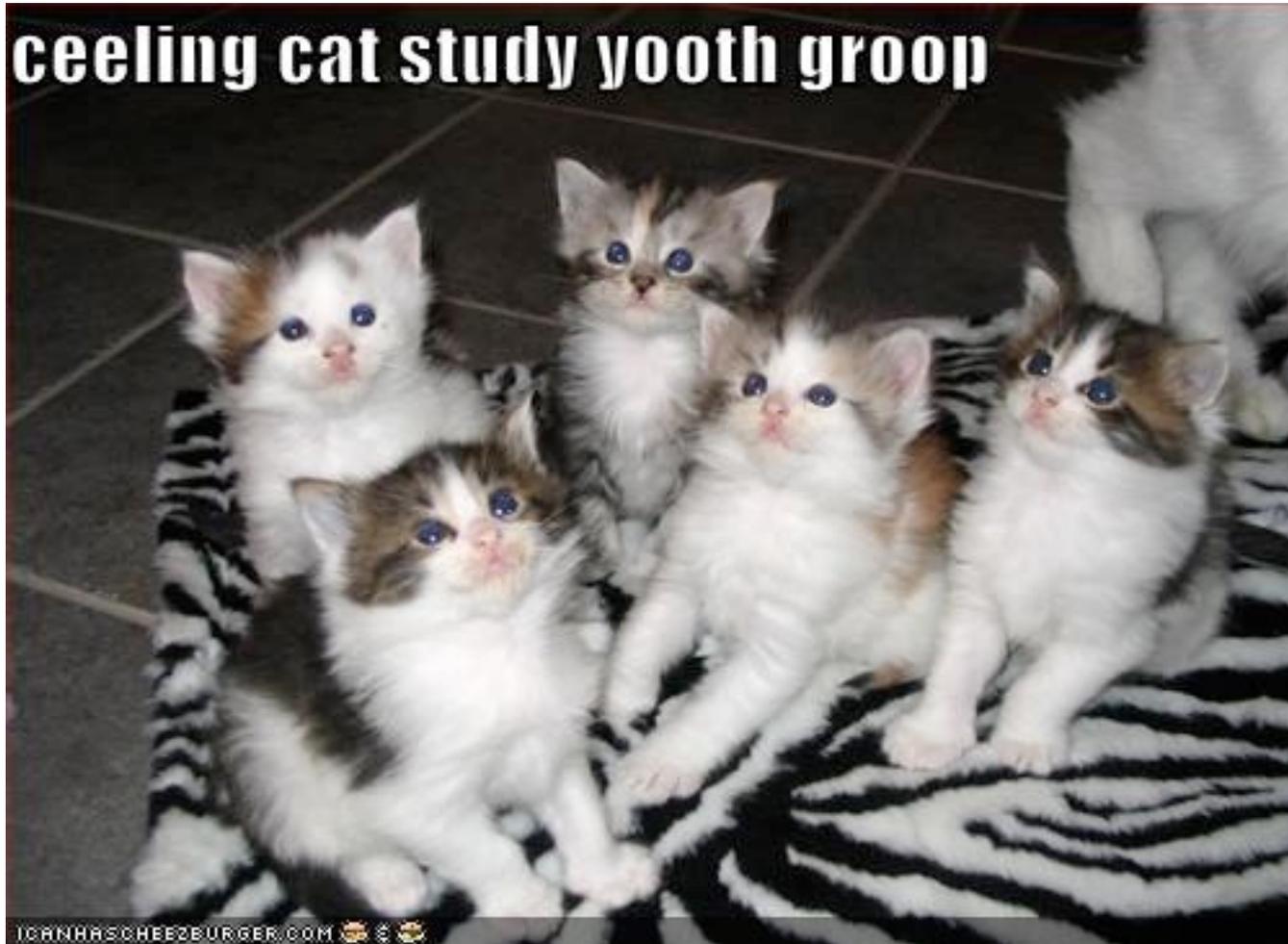
Questions/Comments?



Let the fun begin!



Remember: Stick with your group



Let's do a proof!

Recall: There are 8 HWs

Q1 worth 50 pts, Q2 worth 25 pts, Q3 worth 25 pts

At the end of the semester I give you two options

Option 1: I pick sum of your max 6 HW scores (out of 600)

Score on HW i = Q1 score + Q2 score + Q3 score on HW i

Option 2: I pick your max 6 Q1 scores + max 6 Q2 scores + max 6 Q3 scores (out of 600)

Which of the following is correct?

- A. Option 1 is always better
- B. Option 2 is always better
- C. Depends on the actual scores: sometimes Option 1 is better, sometimes Option 2 is

Give a proof that your answer is correct!