NOTETAKERS NEEDED

We are looking

NOTETAKER

like to volunteer
please email
notetaker@uwindsor.ca

Recording ...

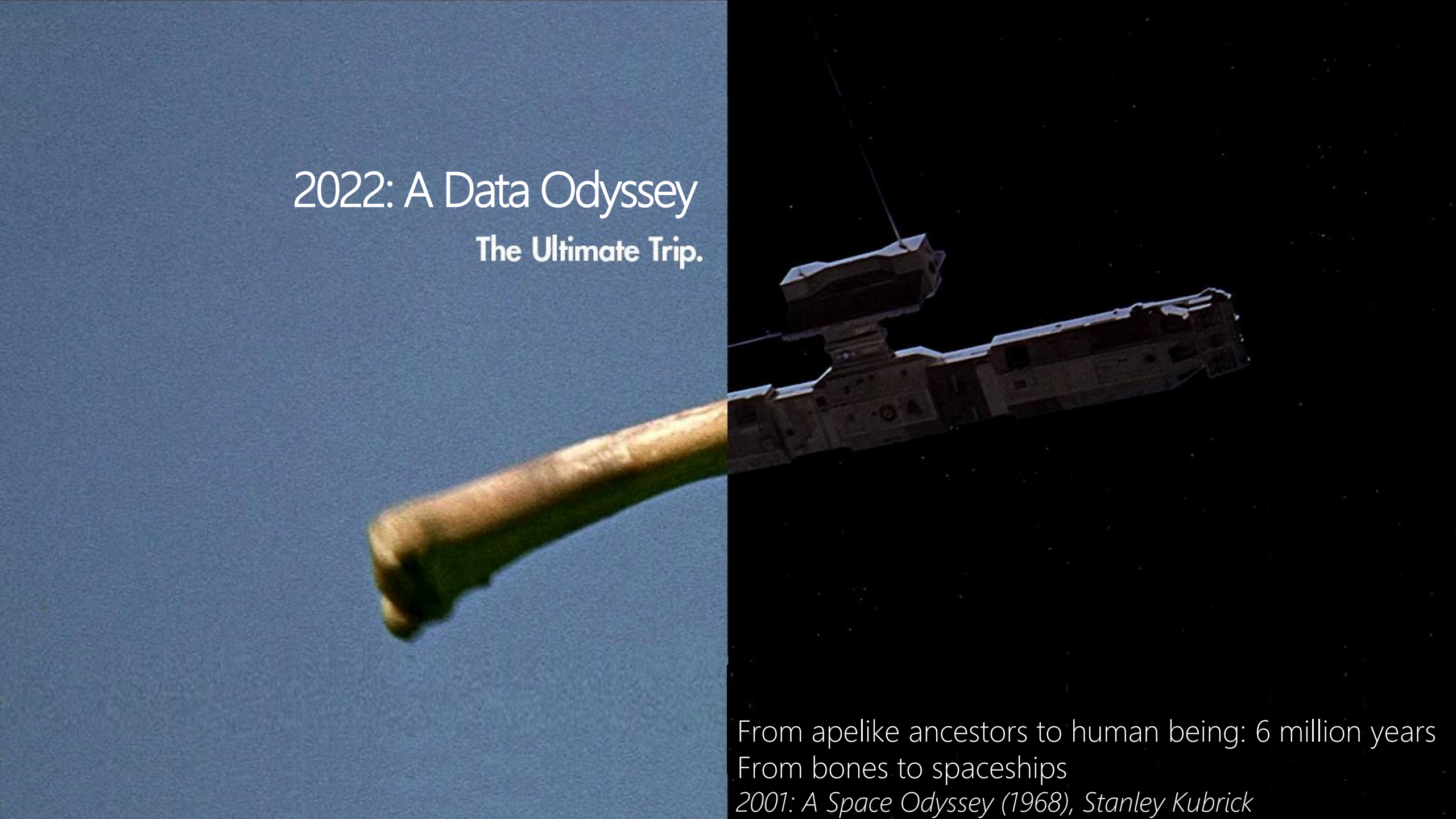
NOTETAKERS NEEDED

VOLUNTEER TO BE A NOTETAKER

We are looking for a volunteer notetaker for this class. If you would like to volunteer please email notetaker@uwindsor.ca

2022: A Data Odyssey

The Ultimate Trip.



From apelike ancestors to human being: 6 million years
From bones to spaceships
2001: A Space Odyssey (1968), Stanley Kubrick

This Week

4

Welcome | Course Information | Data Modeling | Memory | File | Database

Welcome | Course Information | Data Modeling | Memory | File | Database

Welcome | Course Information | Data Modeling | Memory | File | Database

Welcome | Course Information | Data Modeling | Memory | File | Database

Welcome | Course Information | Data Modeling | Memory | File | Database

Welcome | Course Information | Data Modeling | Memory | File | Database

Welcome | Course Information | Data Modeling | Memory | File | Database

Course Information

Title	Database Management Systems
Code	COMP-3150
Term	Fall 2022
Time	Monday Wednesday 05:30PM-06:50PM
Location	202 Toldo Health Education Center


5111 Lambton Tower
Monday Wednesday 07:00PM-08:00PM
hfani@uwindsor.ca

hfani@uwindsor.ca

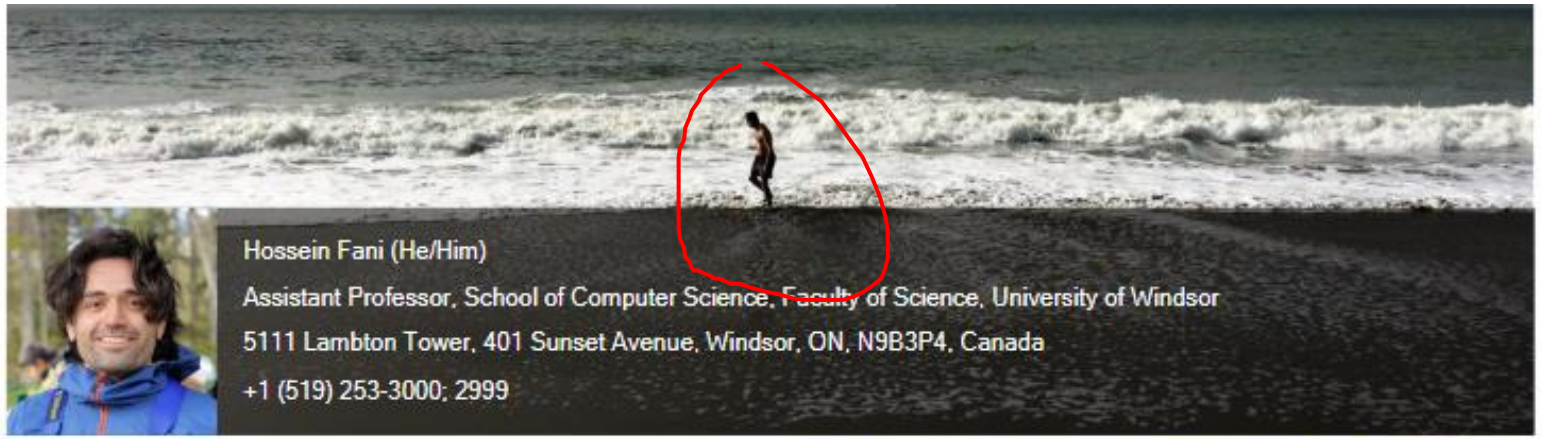
Hossein Fani

Home | Lecture | Publication | Patent | Career | Resume | Slide | Painting | Fani's Lab!

Recent News

SEERa at CIKM2022

https://cs.uwindsor.ca/~hfani → hosseinfani.github.io



Hossein Fani (He/Him)
Assistant Professor, School of Computer Science, Faculty of Science, University of Windsor
5111 Lambton Tower, 401 Sunset Avenue, Windsor, ON, N9B3P4, Canada
+1 (519) 253-3000; 2999

Discover 2022

PyTFL Demo at CIKM2021

ReQue Demo at ECIR2021

Lectures

W2022: NLP for SNA

W2022: A Digital Odyssey

F2021: The Unix Reloaded

W2021: A Digital Odyssey

W2021: NLP for SNA

F2020: A Digital Odyssey

W2019: A Data Odyssey

Biography

Hossein Fani (حسین فانی), he/him, born in Tehran, Iran, 1983, is an Assistant Professor at the School of Computer Science, University of Windsor. He has been the team lead in NSERC Industrial Research Chair on Social Media Analytics and Postdoc Research Fellow at LS3, Ryerson University. He has worked in the broad area of Social Network Analytics with special attention to temporal analysis. His research concerns user community detection, user interest modelling, text mining, information retrieval, and machine learning. Hossein has extensively published in venues such as CIKM and ECIR. His journal publications also appear in premier international journals, including Elsevier's IP&M. His PhD work has resulted in a patent with USPTO US10885131. He is also a PC member at WSDM, KDD, ACL, NAACL, SIGIR, and ECIR.

Grading

Labs (Milestones of a Project)	35%
Midterm Exam (First Class after Reading Week)	25%
Final Exam	40%
Discussion Board (Bonus+)	05%

Laboratory 9

Location	N/A
Assignments	Steps of a Project. They have dependencies!
Deadlines	1 - 2 Weeks, Wednesdays Midnight *Late Submission Receives 0!*

My Project × Running Example

Title — Moviesion

Use Case — Similar Movie Recommendation

Test Case — Input: "2001: A Space Odyssey"
Output: 1. "Interstellar"
2. "Her"
3. "Metropolis"
4. ...

Labs × Deadline

Lab#	#Weeks	Due Date
Lab 1: Setup and Project Specification	1	Sep. 21
Lab 2: Conceptual Modeling (ERD)	2	Oct. 05
Lab 3: Database Schema Design (DDL)	2	Oct. 26
Lab 4: Data Manipulation Language (DML)	2	Nov. 09
Lab 5: Database Programing	2	Nov. 23
Lab 6: XML	2	Nov. 30
Submission deadline: Wednesday Midnight		

Laboratory × GAs × List A

Soroush Ziaeinejad (GA)
ziaeines@uwindsor.ca
Erie Hall 3146
Wednesday 01:00PM-03:00PM

Bilal Soheil (TA)

ID	Name	Grade	Grade	Units	Program and Plan	Level
110055810	ALKHEAMI,FAISAL		Graded	3	Bach of Computer Sci Computer Science-	Semester 4
105070676	Abdullahi,Ihsan Naila		Graded	3	Bach Science (Hon) Comp CS Software Eng-Honours	Semester 5
110089359	Akram,Nadeem		Graded	3	Bach of Comp Sci (Hon) BCSH-Applied Comp CST	Semester 5
110039176	Albalkhi,Laila		Graded	3	Bach Sci (Hon) Comp Sci CS Software Eng Coop-Hon	Semester 5
110010531	Amiouni,Danyel Anthony		Graded	3	Bach of Computer Sci Computer Science-	Semester 6
110062593	Anand,Raghav		Graded	3	Bach of Computer Sci BCSH-Computer	Semester 4
104786208	Balfour,Reuben Alexander		Graded	3	Bach of Computer Sci Computer Science-	Semester 5
110060898	Bedi,Harshit		Graded	3	Bach Computer Sci (Hon) Computer Sci Coop-Honrs	Semester 5
103531508	Bernal,Jonathan Isaac		Graded	3	Bach of Comp Sci (Gen) BCSG-Comp Science-	Semester 6
110038429	Birch,Alexis		Graded	3	Bach of Computer Sci BCSH-Computer Science	Semester 5
110043359	Biru,Alex		Graded	3	Bach of Computer Sci BCSH-Computer Science	Semester 4
105047681	Bisson,Adam Mitchell		Graded	3	Bach of Computer Sci Computer Science-	Semester 6
110035144	Boisclair,Nick		Graded	3	Bach Sci (Hon) Comp Sci CS Software Eng Coop-Hon	Semester 5
110037759	Bornais,Justin Michael		Graded	3	Bach Computer Sci (Hon) Computer Sci Coop-Honrs	Semester 5
104633625	Boudali,Waseem		Graded	3	Bach Arts (Honrs) Soc Sci - Pol Sci Bilingual-Honours	Semester 5
110078341	Brar,Amitoz Zorawar Singh		Graded	3	Bach Sci (Hon) Comp Sci CS Software Eng Coop-Hon	Semester 2
110043608	Brisson,Adrien		Graded	3	Bach Computer Sci (Hon) Computer Sci Coop-Honrs	Semester 5
105212539	Chan,Ethan Yiu-Kwok		Graded	3	Bach of Mathematics BMath Hon-Math and	Semester 7
110042820	Chen,Si Chao		Graded	3	Bach of Computer Sci Applied Computg-Honours	Semester 5
110068920	Choudhary,Arunesh		Graded	3	Bach of Computer Sci BCSH-Computer Science	Semester 4
110036540	Chowdhury,Adib		Graded	3	Bach of Computer Sci BCSH-Computer Science	Semester 5
110034695	Connell,Matthew Adam		Graded	3	Bach Sci (Hon) Comp Sci CS Software Eng Coop-Hon	Semester 5
					Bach Computer Sci (Hon)	Semeste

Laboratory × GAs × List B 13

ID	Name	Grade	Grade Basis	Units	Program and Plan	Level
110043167	Masoodi,Anamta		Graded	3	Bach Computer Sci (Hon) Coop - Development Specializatn	Semester 5
110081922	McCormick,Payton		Graded	3	Bach of Comp Sci (Gen) Deg Cm1 - BCSG-Comp Sci for College Grad	Semester 5
110042415	McLeod,Noah Thomas Gerrit		Graded	3	Bach Sci (Hon) Comp Sci Coop - CS Software Eng Coop-Hon Plan	Semester 5
110011626	Mckewan,Matthew		Graded	3	Bach Computer Sci (Hon) Coop - Computer Sci Coop-Honrs Plan	Semester 5
104582459	Mehdi,Youssef		Graded	3	Bach of Computer Sci (Honours) - BCSH-Computer Science	Semester 7
110016679	Metwally,Abdelrahman		Graded	3	Bach of Computer Sci (General) - Computer Science-General Plan	Semester 4
110014023	Mohamed,salman		Graded	3	Bach of Computer Sci (Honours) - Applied Computg-Honours Plan	Semester 5
110058299	Moorcroft,Brandon Iain Chirstopher Elijah		Graded	3	Bach of Computer Sci (Honours) - Plan	Semester 5
110033064	Mullins,Luke Christopher		Graded	3	Bach of Computer Sci (Honours) - BCSH-Computer Science	Semester 5
110038349	Mustafa,Sharjeel		Graded	3	Bach Sci (Hon) Comp Sci Coop - CS Software Eng Coop-Hon Plan	Semester 5
110060703	Nagani,Muhammad Musaib		Graded	3	Bach of Computer Sci (Honours) - Minor Plan	Semester 4
110036052	Naseem,Ibtasam		Graded	3	Bach Computer Sci (Hon) Coop - Computer Sci Coop-Honrs Plan	Semester 5
110036727	Nguyen,Ha An		Graded	3	Bach Science (Hon) Comp Scienc - BScH-Computer Info Systems	Semester 5
110082571	Nguyen,Jason		Graded	3	Bach of Comp Sci (Gen) Ugrad - BCSG-Comp Science-Ugrads	Semester 6
105027421	Ortiz,Sebastian		Graded	3	Bachelor Commerce and Comp Sci - Business Comp Sci-Honours Plan	Semester 8
110047763	Pashandu,Niraj Deva		Graded	3	Bach Computer Sci (Hon) Coop - Applied Computg Coop-Hon Plan	Semester 5
110038417	Peltier,Dylan		Graded	3	Bach of Computer Sci (Honours) - BCSH-Computer Science	Semester 5
110086972	Perry,Timothy Duke		Graded	3	Bach of Comp Sci (Gen) Deg Cm1 - BCSG-Comp Sci for College Grad	Semester 5
110035605	Picchioni,Joshua Alexander		Graded	3	Bach Science (Hon) Comp Scienc - CS Software Eng-Honours Plan	Semester 5
					Bach Computer Sci (Hon) Coop -	Semester

Farinam Hemmati Zadeh (GA)
hemmatif@uwindsor.ca
Erie Hall 3146
Wednesday 01:00PM-03:00PM

Mohammad Elias Khan (TA)

Laboratory × GAs × List A | B

- Reopening for another submission attempt,
- Reviewing markings of a submission,
- Accepting a late submission for a verifiable reason,

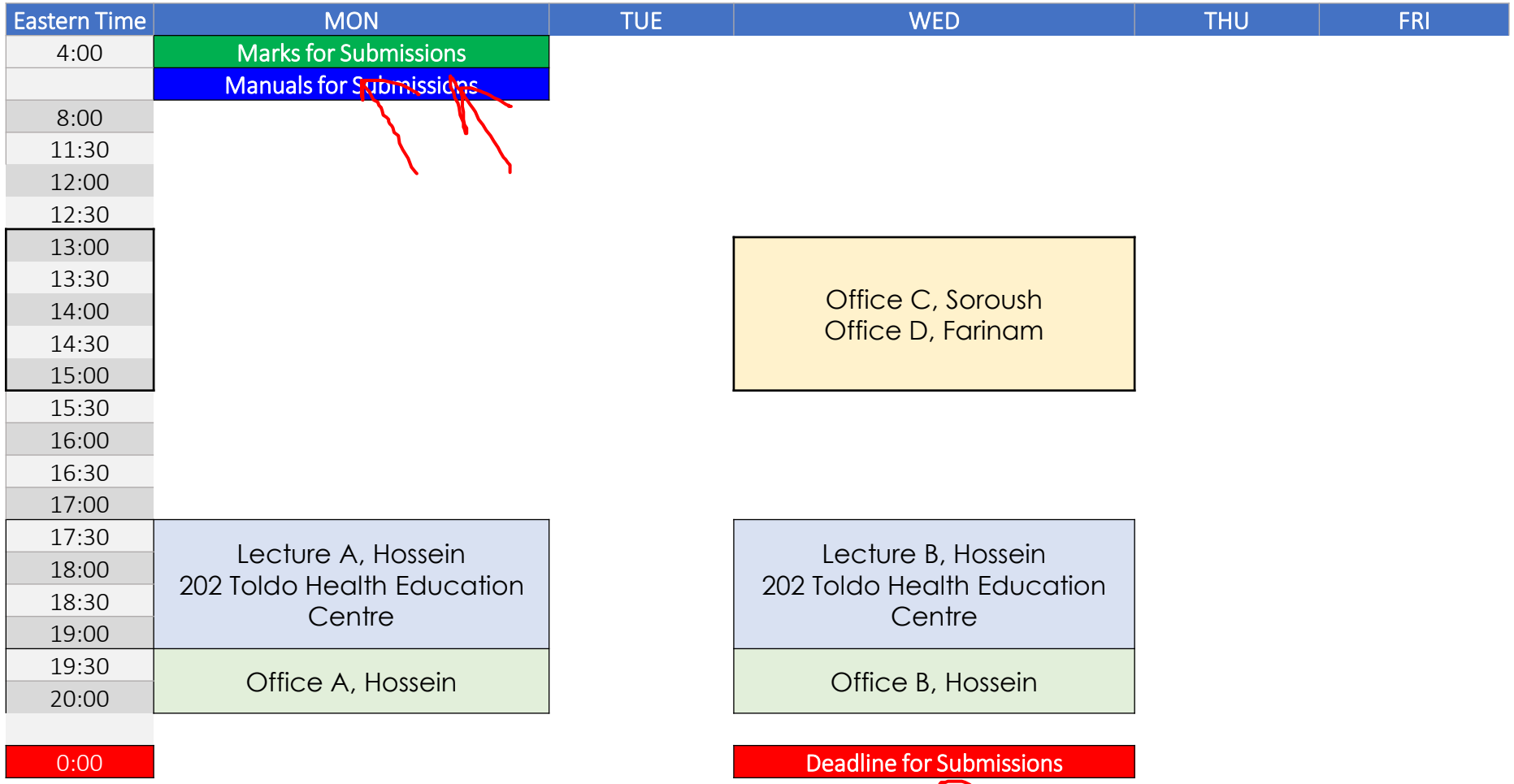
etc.

List A

List B

not resolved

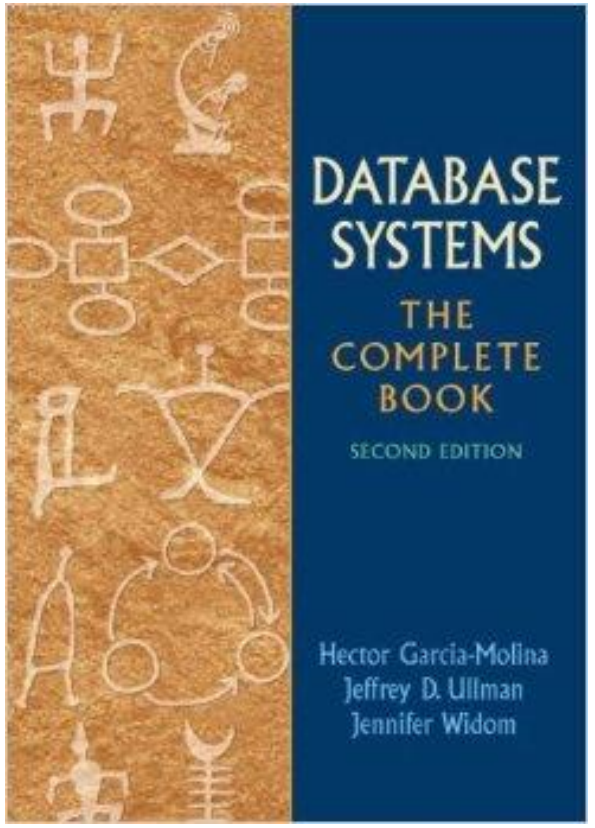
Time



Eastern Time	MON	TUE	WED	THU	FRI
4:00	Marks for Submissions				
	Manuals for Submissions				
8:00					
11:30					
12:00					
12:30					
13:00			Office C, Soroush Office D, Farinam		
13:30					
14:00					
14:30					
15:00					
15:30					
16:00					
16:30					
17:00					
17:30	Lecture A, Hossein 202 Toldo Health Education Centre		Lecture B, Hossein 202 Toldo Health Education Centre		
18:00					
18:30					
19:00					
19:30	Office A, Hossein		Office B, Hossein		
20:00					
0:00			Deadline for Submissions		

Book

Title	Database Systems: The Complete Book
Authors	Hector Garcia-Molina Jeffrey D. Ullman Jennifer D. Widom
Publisher	Prentice Hall
Edition	2nd Edition, 2008
ISBN	0131873253



COMP3150-1-R-2022F (Database Management Systems)

Homepage
Weekly Schedule
Announcements

Learning Outcome
Syllabus (Outline)
Instructor
Lectures
Classroom

Labs
Lab Instructors

My Grades

Discussion Board
Email
Help

Course Management

Control Panel

Homepage (BB)

Course Syllabus	Done
Lab Guide	Done
Lab Deadlines	Done
Slides + Recording	End of Day
Announcements	Check BB for course updates & information!

Programming Language

Name	C
IDE	NetBeans, CodeBlocks, Notepad
Name	SQL
DBMS	SQLite

Naming × 10% of Labs!

Table, File

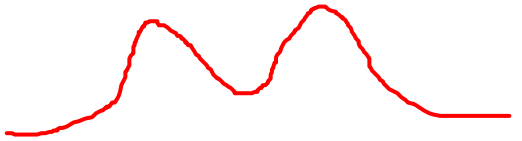
Singular Noun, PascalCase

```
Movie, Actor, MovieActor, MovieProductionCompany
```

Variable

Noun, camelCase

```
int oscarBestPictureId;
```



Function

Verb, camelCase

```
void addMovie();
```

SQL Keywords

ALL UPPER CASE

```
SELECT, INSERT, UPDATE, WHERE
```

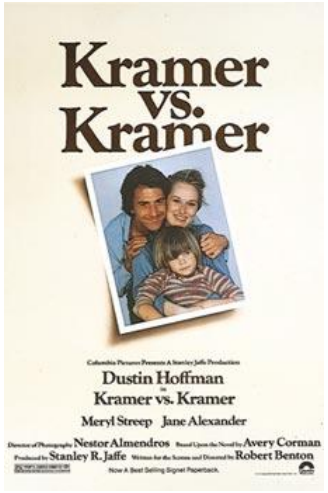
Attendance: Optional

Policy	DO NOT DISTRACT OTHERS!
Phone	Off, Silent
Laptop	Closed, Far End of Each Row
Online	Blackboard (we don't take questions)

Pink Floyd - Another Brick In The Wall (1979)

https://www.youtube.com/watch?v=YR5ApYxkU-U

Are robots becoming more human or humans becoming more robotic?



Googler vs. Googler

Googler: A Person Who **Builds** Google
Googler: A Person Who Works for Google
Googler: A Person Who Uses Google

PRESS'N
XPRESS

Solutions Products Book a dem

Customer Experience

The customer feedback management platform that benchmarks performance by customer journey & measures in-the-moment customer experience.

Learn More

HOW CAN WE HELP?

Employee Experience

The employee experience management platform that helps organizations understand what matters most to keep their frontline and deskless employees engaged.

Learn More

How it works?

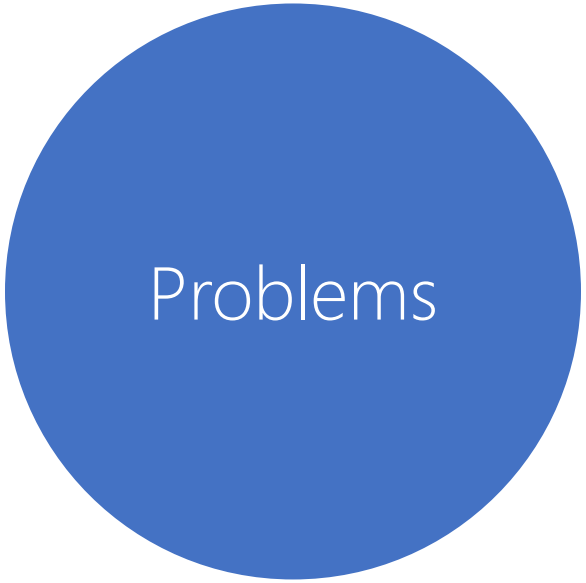
Software Designer (Architect)

Software Developer

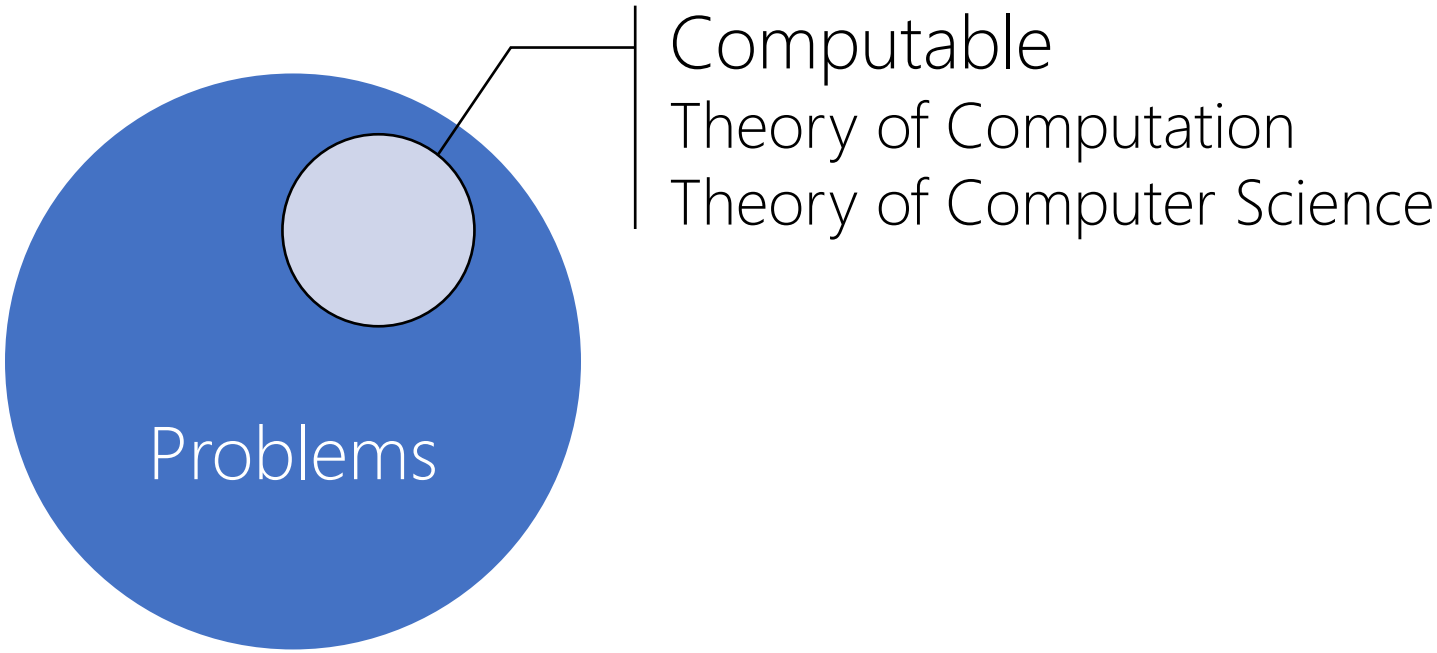
Software End User

Welcome | Course Information | Data Modeling | Memory | File | Database

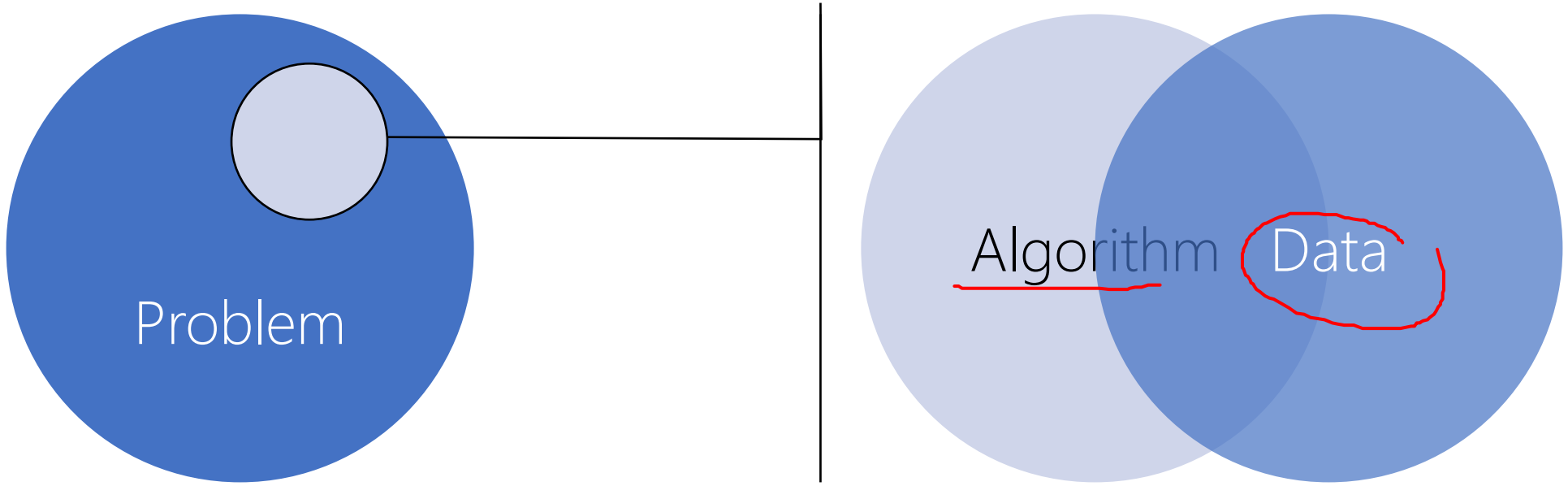
2022: A Data Odyssey



2022: A Data Odyssey

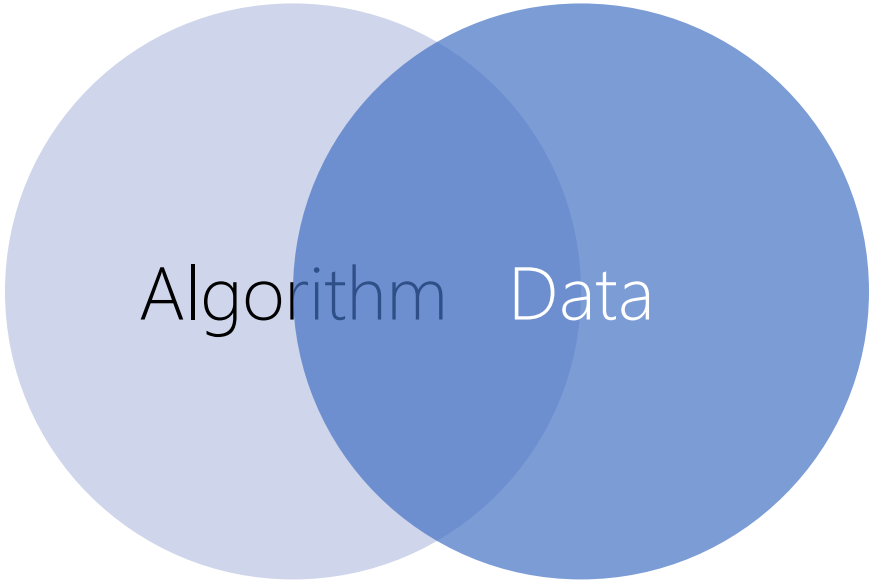


2022: A Data Odyssey



2022: A Data Odyssey

There is interaction between data engineers and algorithm designers.

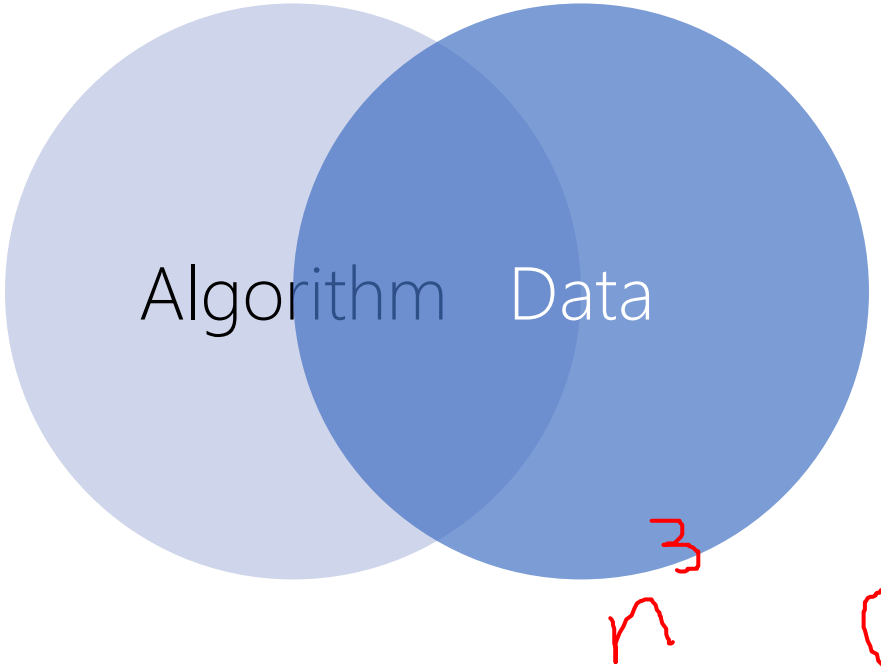


Data gets bigger!
Algorithms get slower!

Better Data Modeling → Faster Algorithm
e.g., ?

2022: A Data Odyssey

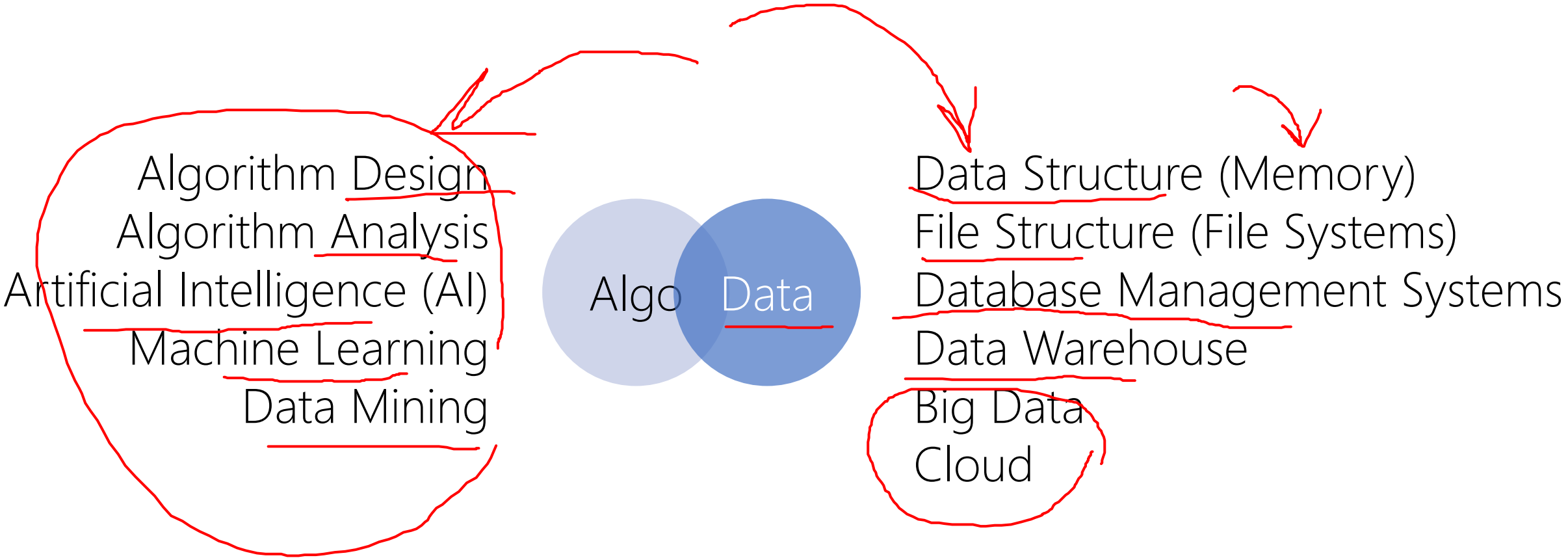
There is interaction between data engineers and algorithm designers.



Data gets bigger!
Algorithms get slower!

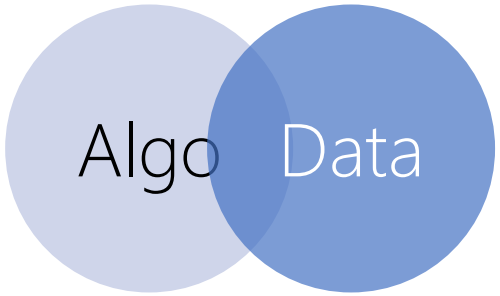
Better Data Modeling → Faster Algorithm
- Sorting in Arrays vs. Trees
-Searching in Arrays vs. Trees
-Multiply Sparse Matrix in Arrays vs. Linked Lists

2022: A Data Odyssey × Academy 32



2022: A Data Odyssey × Academy 33

Algorithm Design
Algorithm Analysis
Artificial Intelligence (AI)
Machine Learning
Data Mining



Data Structure (Memory)
File Structure (File Systems)
Database Management Systems
Data Warehouse
Big Data
Cloud

2022: A Data Odyssey × Real World 34

Data Modeling: Real World Entity

Conceptual Level | Logical Level | Physical Level

Conceptual Level | Logical Level | Physical Level

Conceptual Level | Logical Level | Physical Level

Conceptual Level | Logical Level | Computable Entity

2022: A Data Odyssey × Real World 35

Data Modeling: ~~Real World~~ Entity

Conceptual Level | Logical Level | Physical Level

Conceptual Level | Logical Level | Physical Level

Conceptual Level | Logical Level | Physical Level

Conceptual Level | Logical Level | Computable Entity

Data Modeling × Conceptual Level 36

1. Identify Real World Entities, Attributes, Relationships
2. Create Schema

Data Modeling × Conceptual Level 37

Entities for a movie recommender system:

- Movie
- Director
- Company

Data Modeling × Conceptual Level 38

Movie Attributes:

- Title
- Genre
- Language
- RunningTime
- Poster
- …

Data Modeling × Conceptual Level 39

Movie Attributes' Type (More *Optional* Details):

- Title (`char[]`)
- Genre (`char[]`)
- Language (`char[]`)
- RunningTime (`int`)
- Poster (?)
- …

Data Modeling × Conceptual Level 40

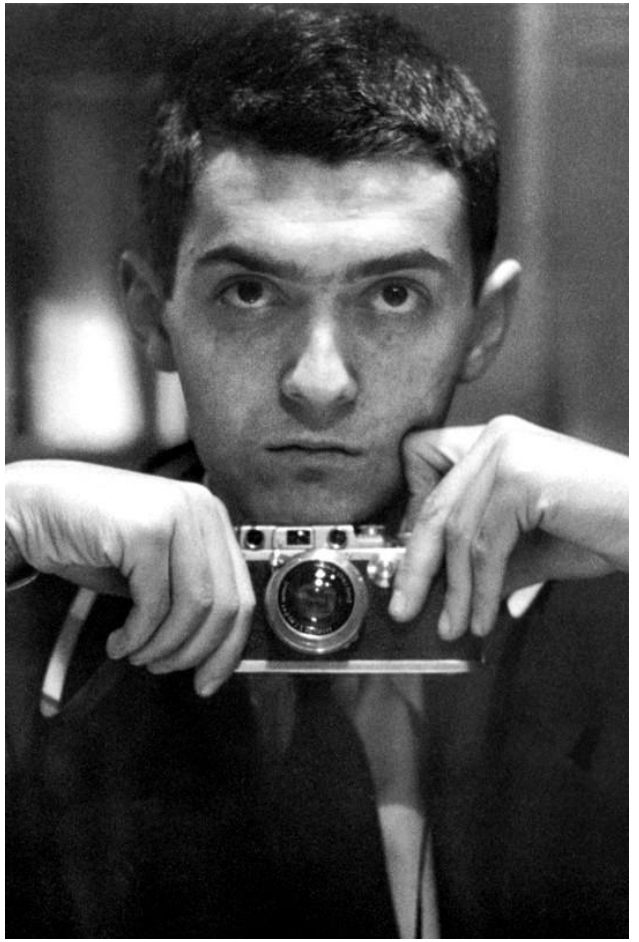
Movie Attributes' Type (More *Optional* Details):

- Title (`char[]`)
- Genre (`char[]`)
- Language (`char[]`)
- RunningTime (`int`)
- Poster (~~`byte`~~ `char[]`)
- …

Data Modeling × Conceptual Level 41

Director Attributes:

- Name (`char[]`)
- DateOfBirth (`int`)
- PlaceOfBirth (`char[]`)
- Photo (`char[]`)
- …



Data Modeling × Conceptual Level 42

Company Attributes:

- Name (`char[]`)
- Address (`char[]`)
- DateOfEstablishment (`char[]`)
- Logo (~~`byte`~~ `char[]`)
- ...

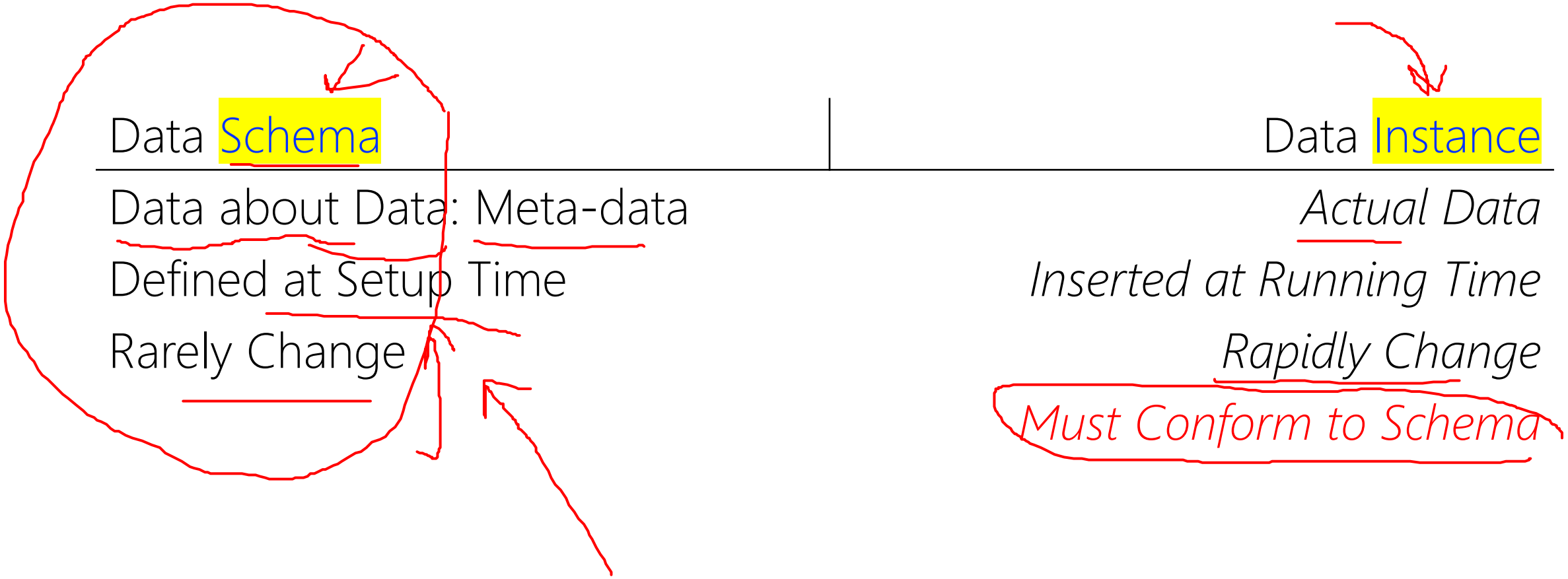
Data Modeling × Conceptual Level

Movie Schema	Movie Data Instance
Title (`char[]`)	*2001: A Space Odyssey*
Genre (`char[]`)	*Sci-fi*
Language (`char[]`)	*English*
RunningTime (`int`)	*142*
Poster (`char[]`)	

Data Modeling × Conceptual Level 44

Movie Schema	Movie Data Instance
Title (`char[]`)	*Rosemary's Baby*
Genre (`char[]`)	*Horror*
Language (`char[]`)	*English*
RunningTime (`int`)	*136*
Poster (`char[]`)	

Data Modeling × Conceptual Level 45



Data Schema	Data Instance
Data about Data: Meta-data	*Actual Data*
Defined at Setup Time	*Inserted at Running Time*
Rarely Change	*Rapidly Change*
	Must Conform to Schema

Data Modeling × Conceptual Level 46

Movie × Director × Company Relationships:

Director makes Movie	Movie is made by Director
Company distributes Movie	Movie is distributed by Company
Company budgets Movie	Movie is budgeted by Company

Data Modeling × Conceptual Level 47

Practice1: Data Modeling for UWindsor's Library at Conceptual Level

Entities: ?
Attributes: ?
Relationships: ?

Data Modeling × Conceptual Level 48

Practice1: Data Modeling for UWindsor's Library at Conceptual Level

Entities: Book, Staff, Student, …
Attributes:
Book: ISBN, Title, …
Staff: Name, Salary, Rank, …
Student: StudentId, Name, …
Relationships: Student borrows Book from Staff

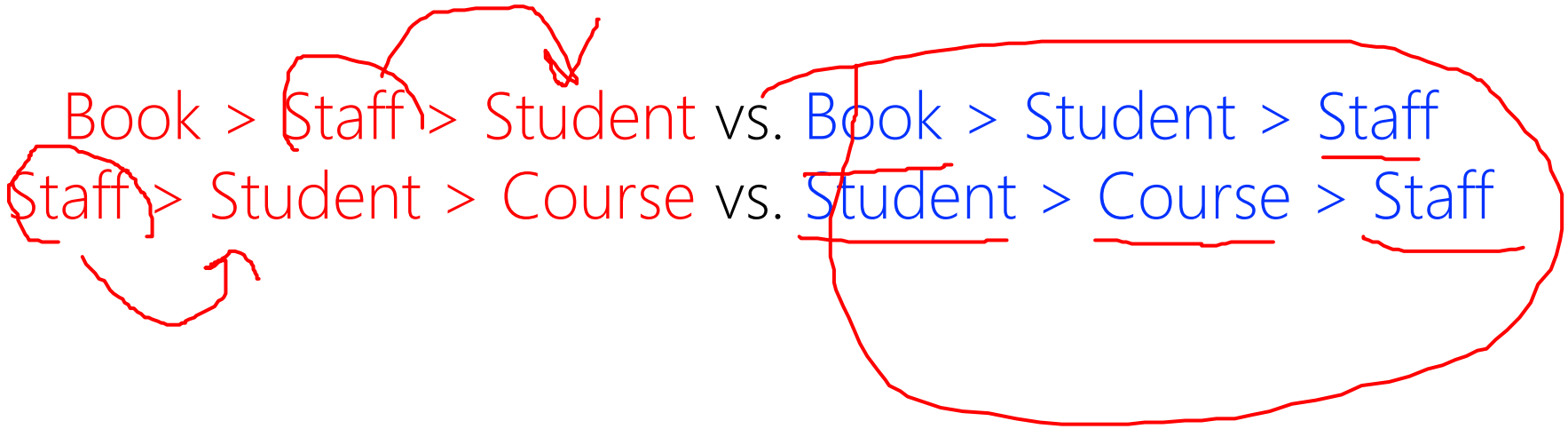
Data Modeling × Conceptual Level 49

Practice2: Data Modeling for the UWindsor at Conceptual Level

Entities: ?
Attributes: ?
Relationships: ?

Data Modeling × Conceptual Level 50

Priorities: Time & Money



2019: A Data Odyssey × Real World 51

Data Modeling: Real World Entity

Conceptual Level | Logical Level | Physical Level

Conceptual Level | Logical Level | Physical Level

Conceptual Level | Logical Level | Physical Level

Conceptual Level | Logical Level | Computable Entity