Data Management Group @Utah

Data Management Research Center for Human-Centered, Efficient, and Scalable Systems

http://mod.cs.utah.edu/
Data is the new oil!

But oil has to be refined and extracted to be usable

Our job is to develop refinement machinery to extract *information* from *data*!
Modern data challenges: Data volume

Bioinformatics over the years:
1990s: doing a BLAST search
2000s: analysing 30 microarrays
2010s: analysing 6 Tb of NGS
2020s: creating a cloud the size of Netflix to reanalyse the whole of SRA for one figure

IDC says 175 ZB will be created by 2025 (Image courtesy IDC)

How many 0s in a Zettabyte?
Modern data challenges: Data debugging

Mismatch between data and systems

90% Accuracy

30% Accuracy

Metric vs Imperial
KG vs lbs
Modern data challenges: Data explainability

I used to think correlation implied causation.

Then I read "Book of Why" now I don't.

Sounds like the book helped.

Well, maybe.
Faculty members

Prof. Jeff Phillips
Research Interests:
- Streaming & Sketching
- Spatial data management
- Spatial statistics and trajectories
- High-dimensional data

Prof. Prashant Pandey
Research Interests:
- Data Structures for Big Data
- Graph processing
- Computational biology
- Deep learning on graphs

Prof. El Kindi Rezig
Research Interests:
- Data exploration and debugging
- Data quality and cleaning
- Data visualization
- Query languages and UI

Prof. Anna Fariha
Research Interests:
- Data system usability
- Data summarization
- Explainable AI
- Data fairness

Joining Fall 2023

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Current projects

Democratizing data-driven systems
— Anna Fariha

Data systems on modern hardware
— Prashant Pandey

Spatial exposome data: CEDaR
— Jeff Phillips

Large-Scale indexing & analysis of genomic data
— Prashant Pandey

Efficient & scalable graph processing
— Prashant Pandey

Persistent data summaries
— Jeff Phillips/Prashant Pandey

Data sketching
— Jeff Phillips

Data debugging, exploration, & information extraction
— El Kindi Rezig

Data structures for Scalable Computing
— Jeff Phillips/Prashant Pandey
Students

Hasan Pourmahmood

Alex Tokita

Manoj Marneni

Hunter McCoy

Medha Kalkur

Benwei Shi

Anna Bell

Susmitha Raja

Pranjal Patil

Tao Yang

And more....
Our alumni:

• Dong Xie — Professor at Penn State
• Zhouyue Zhao — Professor at University of Buffalo
• Sunipa Dev — Research Scientist at Google Research
• Yan Zheng — Research Scientist at Visa Research
• Debjyoti Paul — Research Scientist at Meta
• Yanquing Peng — Research Scientist at Meta
• Mina Ghashmi — Applied Scientist at Amazon
• You — Whatever you want to be…