# BIG Data

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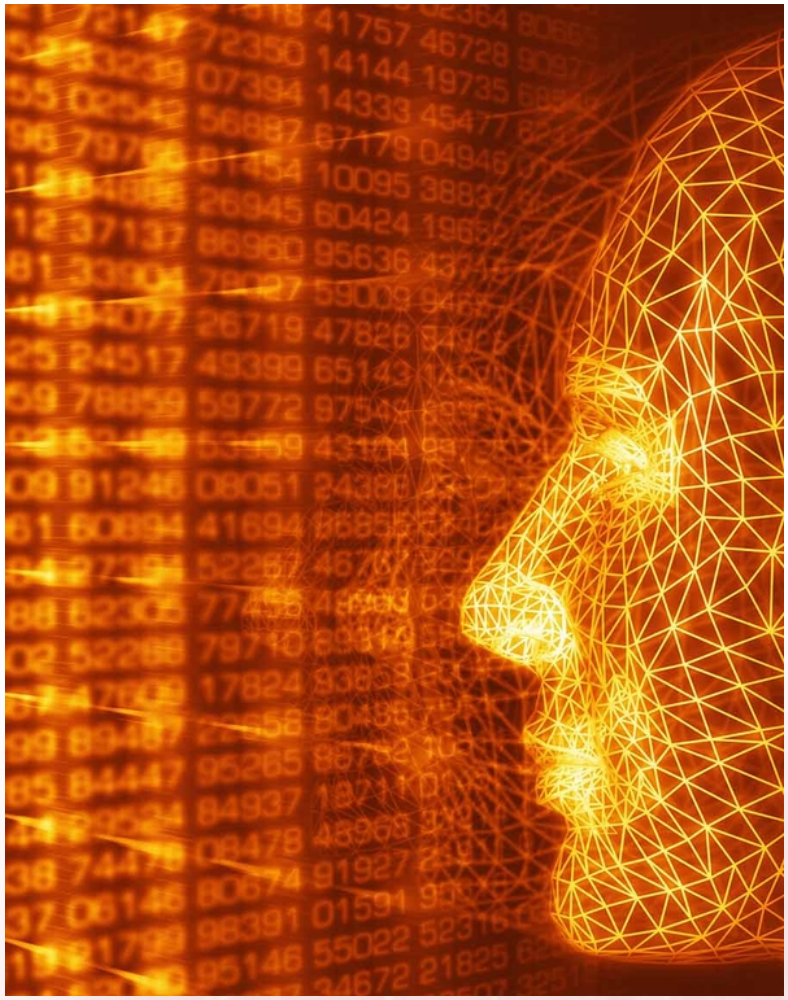
# Welcome

# Big data from an LAS perspective

- Iowa State University's most academically diverse college
  - Home to statistics, mathematics, computer science departments
  - Astrophysics, particle physics, climate science, bioinformatics
- Focus on interdisciplinary research

# Why are we here?

- Data beyond research
- The applications
- The implications
- Your responsibility



# Beyond research

- Using data to improve student performance
  - Predict, identify and mitigate risk
- Combining behavioral and instructional data to improve pedagogy
  - Interactive testing and digital content delivery

# Applications of data

- Access to data
- Storing data is easy and cheap
- Experimental design has transformed
- National Science Foundation funding

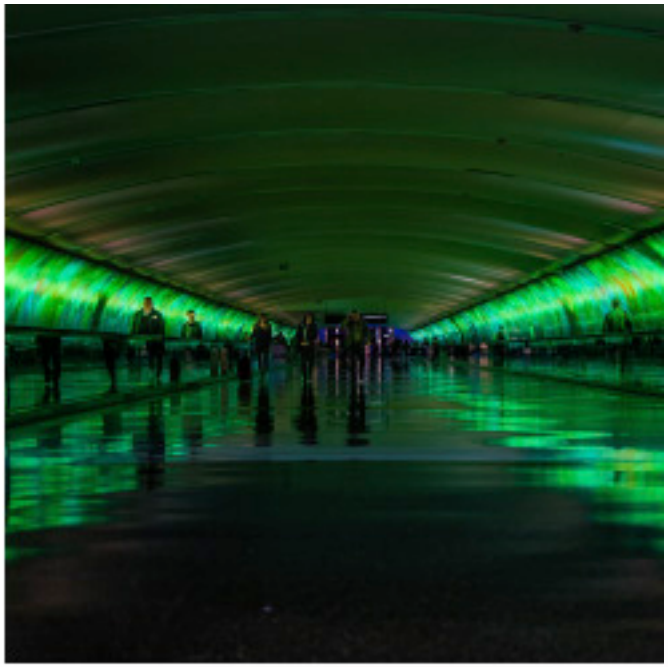
**2.5 Quintillion (exa) bytes/day**

# The implications

- Data-driven decisions
  - Algorithms vs. humans
- Storing the data
  - Who is responsible?
  - What type of security is required?
  - How do you ensure integrity?

# The implications

- Accessing the data
  - How/should this be regulated?
  - What are the political implications?
  - Who should have access?



# The implications

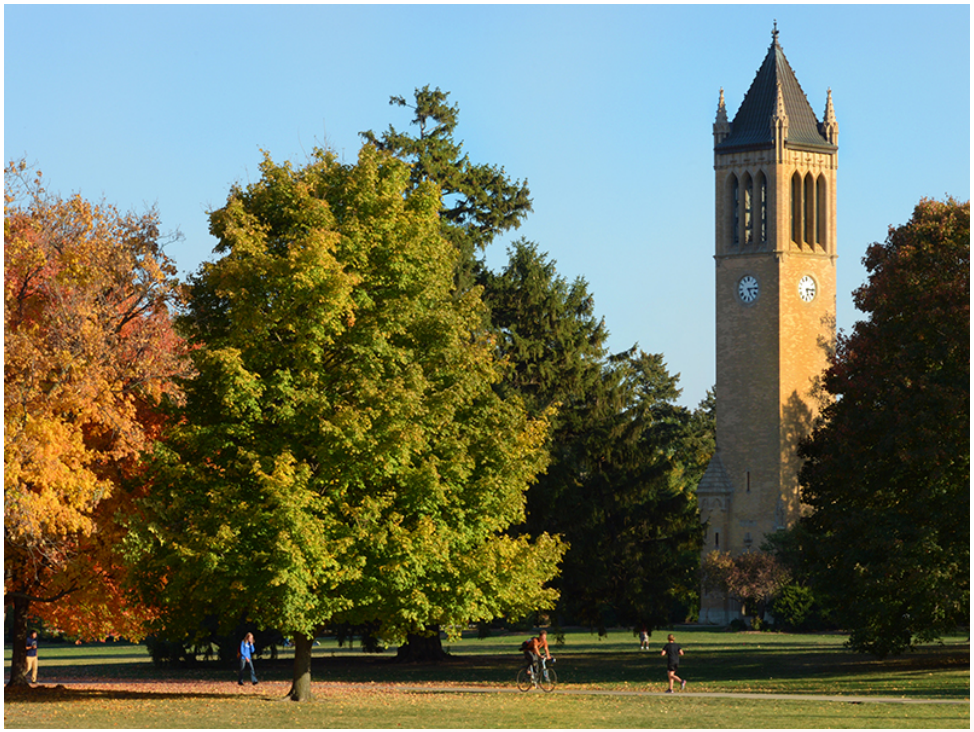
- The bigger the data, the bigger the breach
- Balance risk with cost efficiencies
- Need more people who can process and analyze petabytes of data

# The ethics

- How is data used?
  - Location
  - Financial
  - Health
  - Behavioral
  - Travel
  - Internet usage
  - Phone records
  - Educational

# How will you manage big data?

- You are the new leaders in research
  - How will you use data?
  - How will you protect data?
  - How will you balance access with security and privacy?
  - How will you influence data-usage policies?



*Enjoy the event and our beautiful campus.*

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