Panel Discussion:

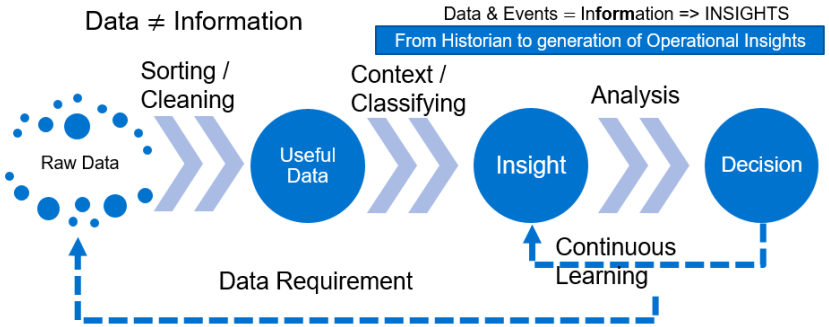
Student Engagement with Real-World Data

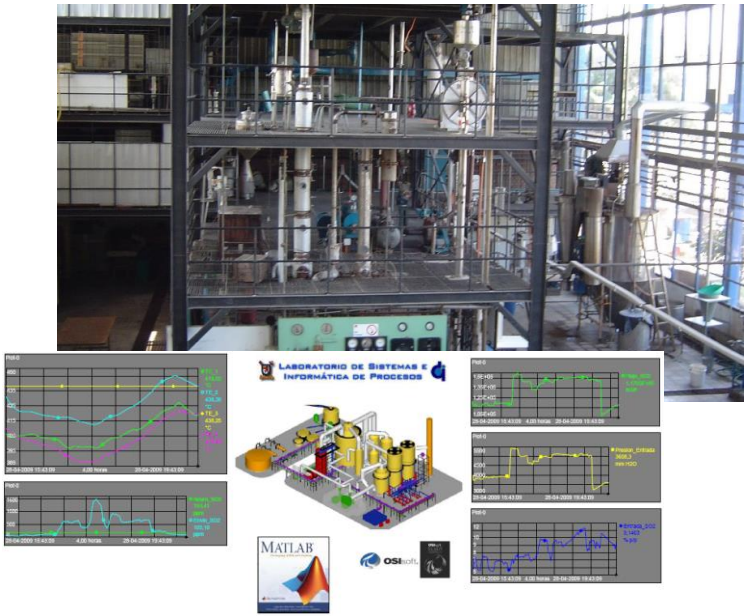
Erica Trump, Ph.D.

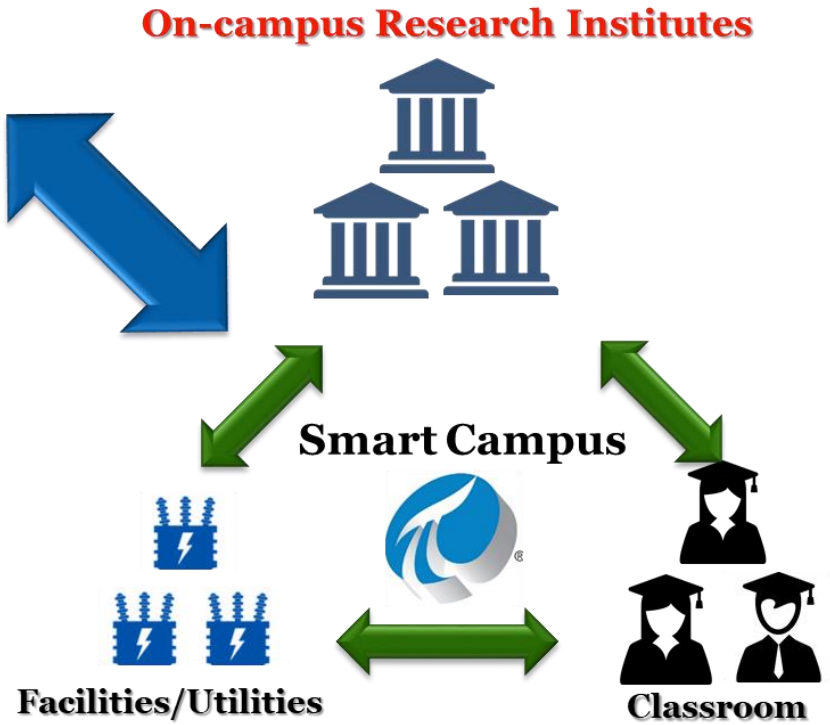
Program Manager, Academic Learning

Industry Innovation ⇔ Engineering Education

- Skills in visualization and analytics
- Open-ended design problems
  - Original ideas, practical applications







W. Pratt Rogers, Ph.D.

Assistant Professor of Mining Engineering

The University of Utah:
College of Mines and Earth Sciences

Background and areas of expertise

Background	Expertise	Approach
• University of Arizona – PhD Mining Engineering • MISOM Technologies • Currently at University of Utah • Large assets to “small metal bubbles”	• Socio-technical systems • Data management • Analytics, BI, OI, etc. • Health and safety • Machine learning • Short-term mine planning	• Train next generation of mining engineers • Bring data into classroom • Speed up decisions • Engage industry

George Paterson

Manager, Energy Control Center

Campus Chilled Water Demand and Thermal Energy Storage

Cameron Whittaker, Justin Williams and Michael Watkins

Project Introduction

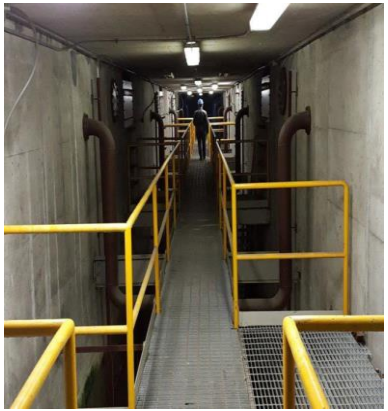
THE UNIVERSITY OF IOWA

- Studied problem description, PI software and the system itself
- Created one line process flow diagram
- Defined needed data
- Found needed data using PI
- Data analysis using Excel
- Results and conclusions

West Chilled Water Plant TES System

THE UNIVERSITY OF IOWA

- Consists of 10 interconnected tanks placed 50 feet underground
- Each tank has a capacity of 100,000 gallons, totaling 1,000,000 gallons of storage
- The total energy stored can be converted into about 2000 tons of refrigeration for 4 hours
- Used for a total of 4 hours in 2016



Results of Analysis

- Temperature effect on capacity
  - -Capacity decreases as temperature increases
    - - cooling towers are unable to effectively reject heat to atmosphere
  - -Cooling towers release thermal energy to atmosphere
  - -***ΔT*** of the system decreases (the outside temperature becomes warmer)
  - -The cooling tower's ability to reject thermal energy is reduced

- Comparison of Chilled Water Production Demand curve with Maximum Capacity in summer
  - -Reduced Capacity
  - -Increased Demand
    - -TES currently only used to meet absolute maximum demand.

Steve Moore

Instructor of Process Technology


DEL MAR COLLEGE
Dreams. Delivered.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Dreams. Delivered.


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Dreams. Delivered.

Leo Vitor

Project Manager

Questions

Please wait for the **microphone** before asking your questions

State your
name & company

Merci

谢谢

Danke

Спасибо

Gracias

Thank You

감사합니다

ありがとう

Grazie

Obrigado

Optional: Click to add a takeaway you wish the audience to leave with.