MIT INSTITUTE FOR DATA, SYSTEMS, AND SOCIETY

IDSS

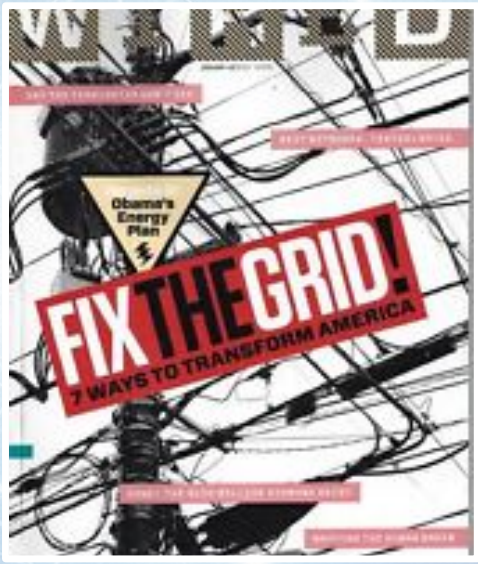
Data Science and Artificial Intelligence

MUNTHER DAHLEH | April 11, 2018

Mission

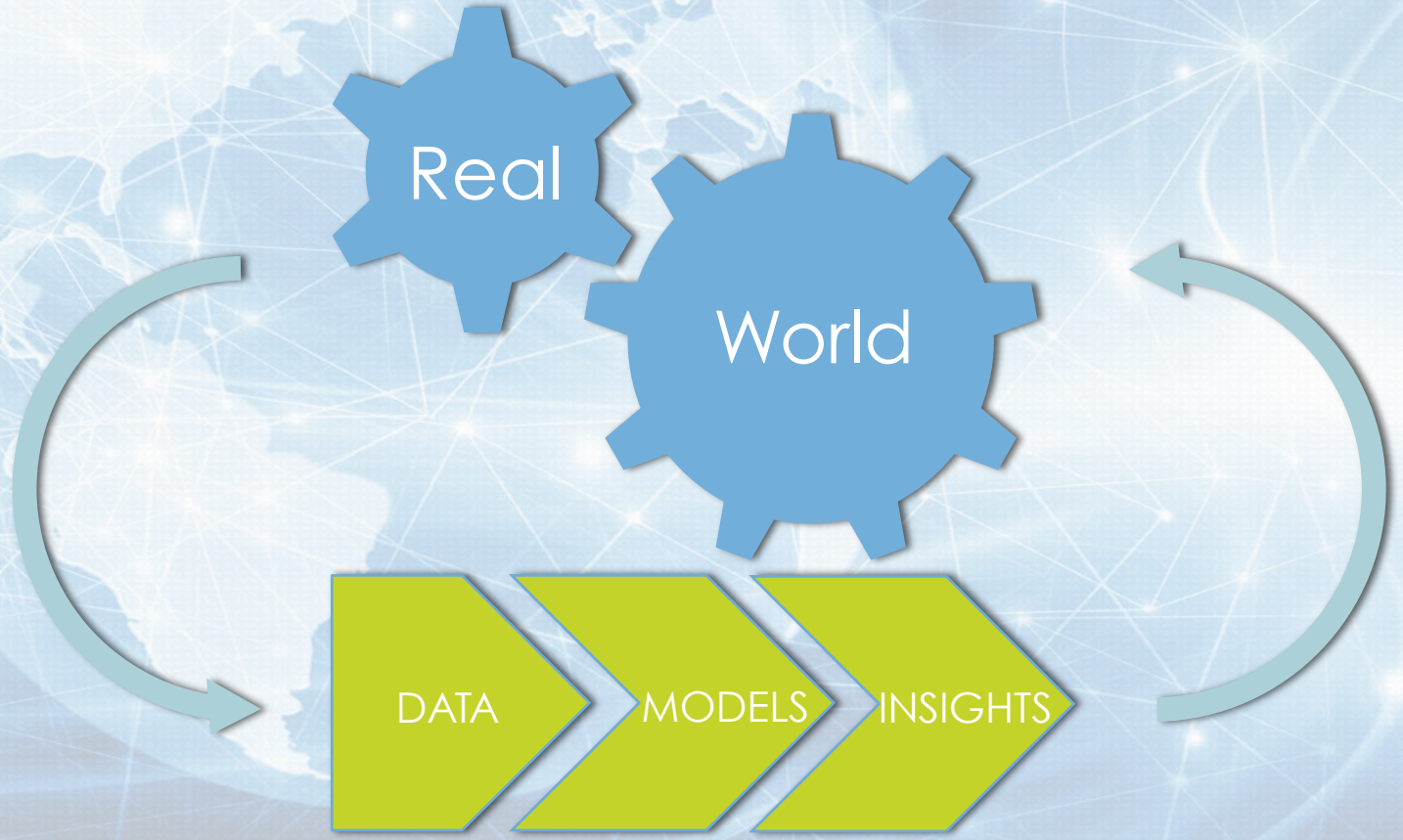
*"Address **complex societal challenges** by advancing education and research at the intersection of **statistics**, **data science**, **information** and **decision systems**, and **social sciences**."*

IDSS mission statement

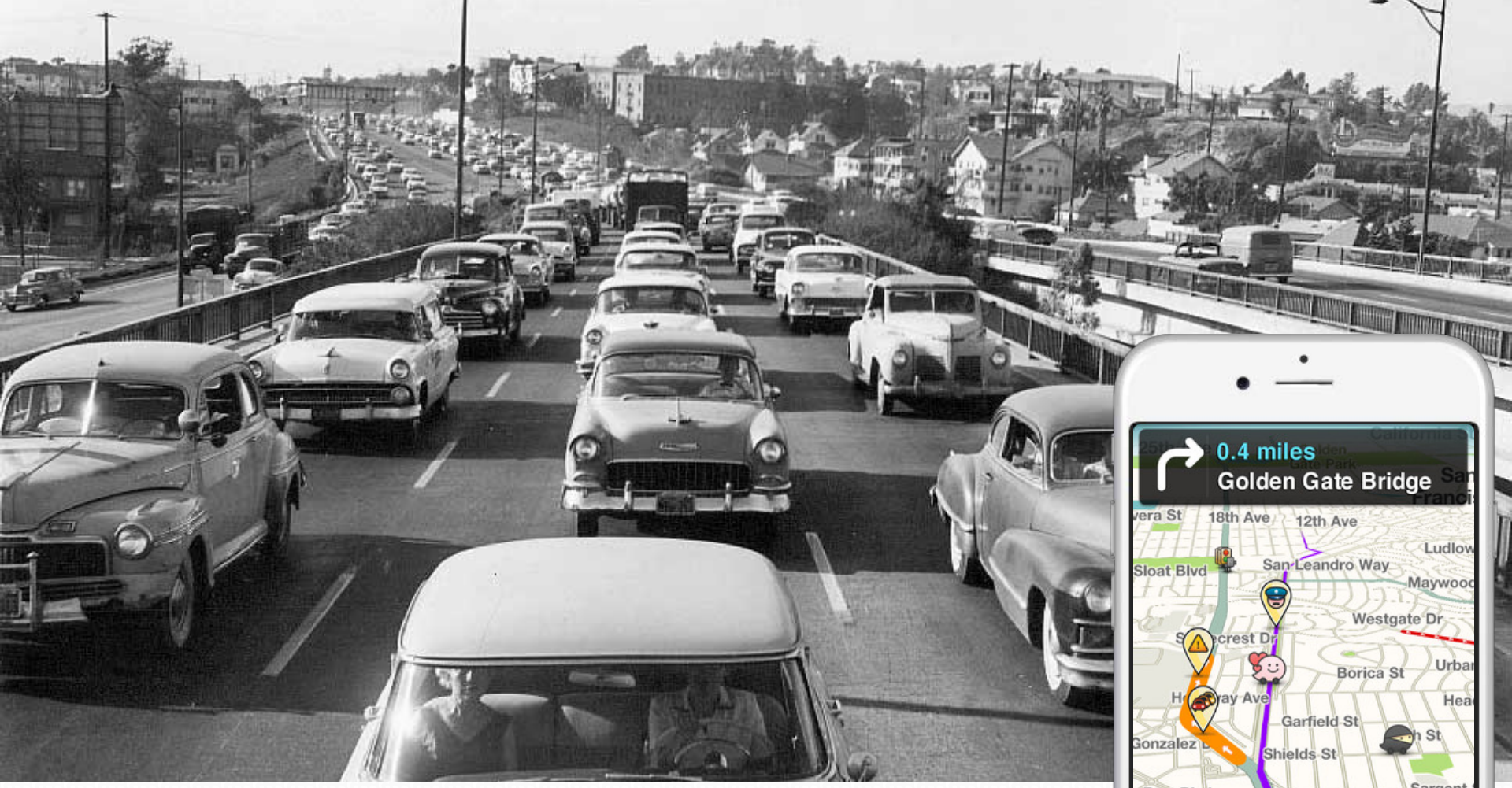


*"Address **complex societal challenges** by advancing education and research at the intersection of **statistics, data science, information** and **decision systems**, and **social sciences**."*

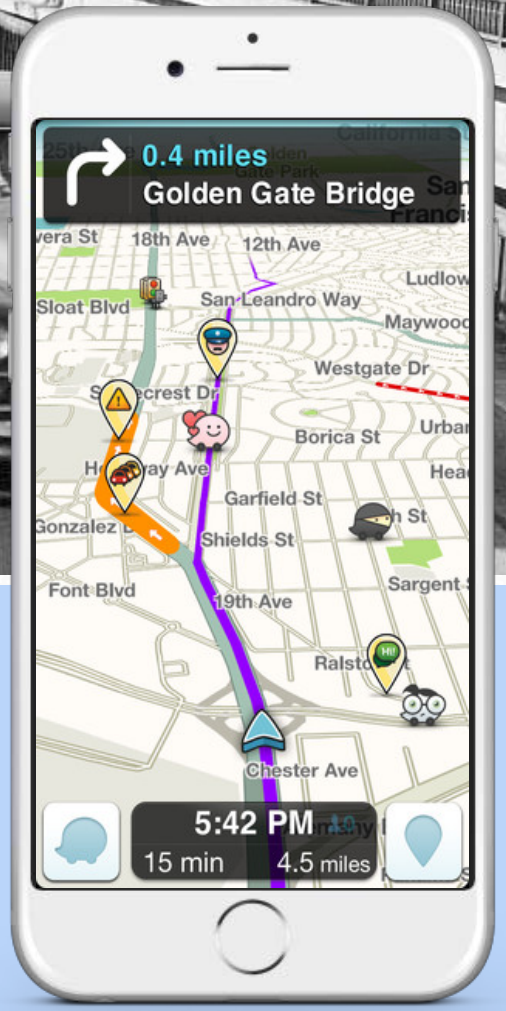
IDSS mission statement

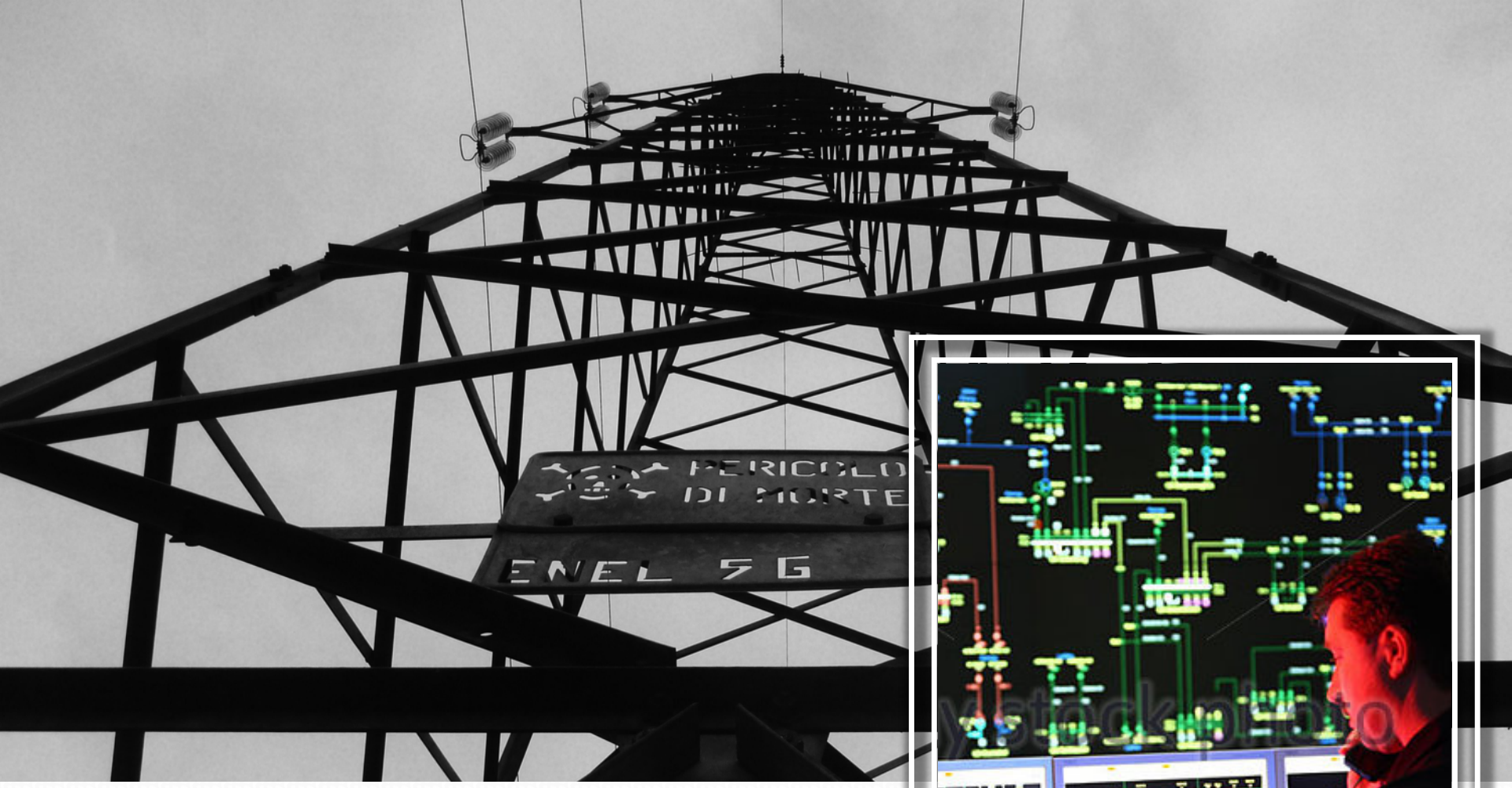


Intelligent Infrastructures



Congestion Going From Bad to Worse

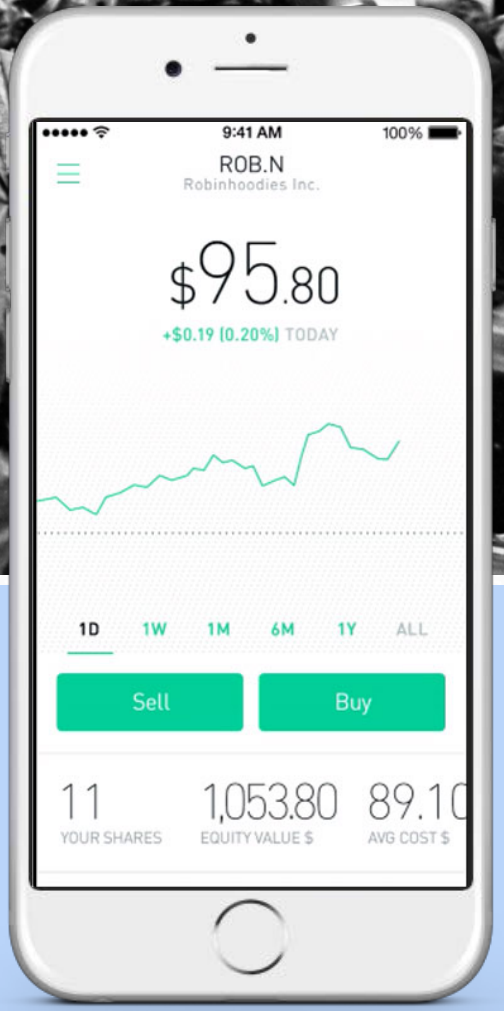




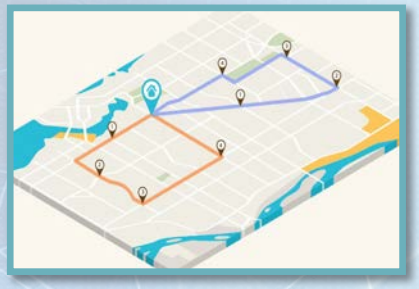
What if the Lights Go Out?

Mobility of the Future

Autonomous vehicles will transform transportation and our behavior. Technologically, we need to understand how to create distributed intelligent control interacting with data-driven incentive mechanisms to create a safe and secure architecture.



Too Big To Fail



Physical and Engineered Systems

Society

Institutions

DATA

DATA

MODELS

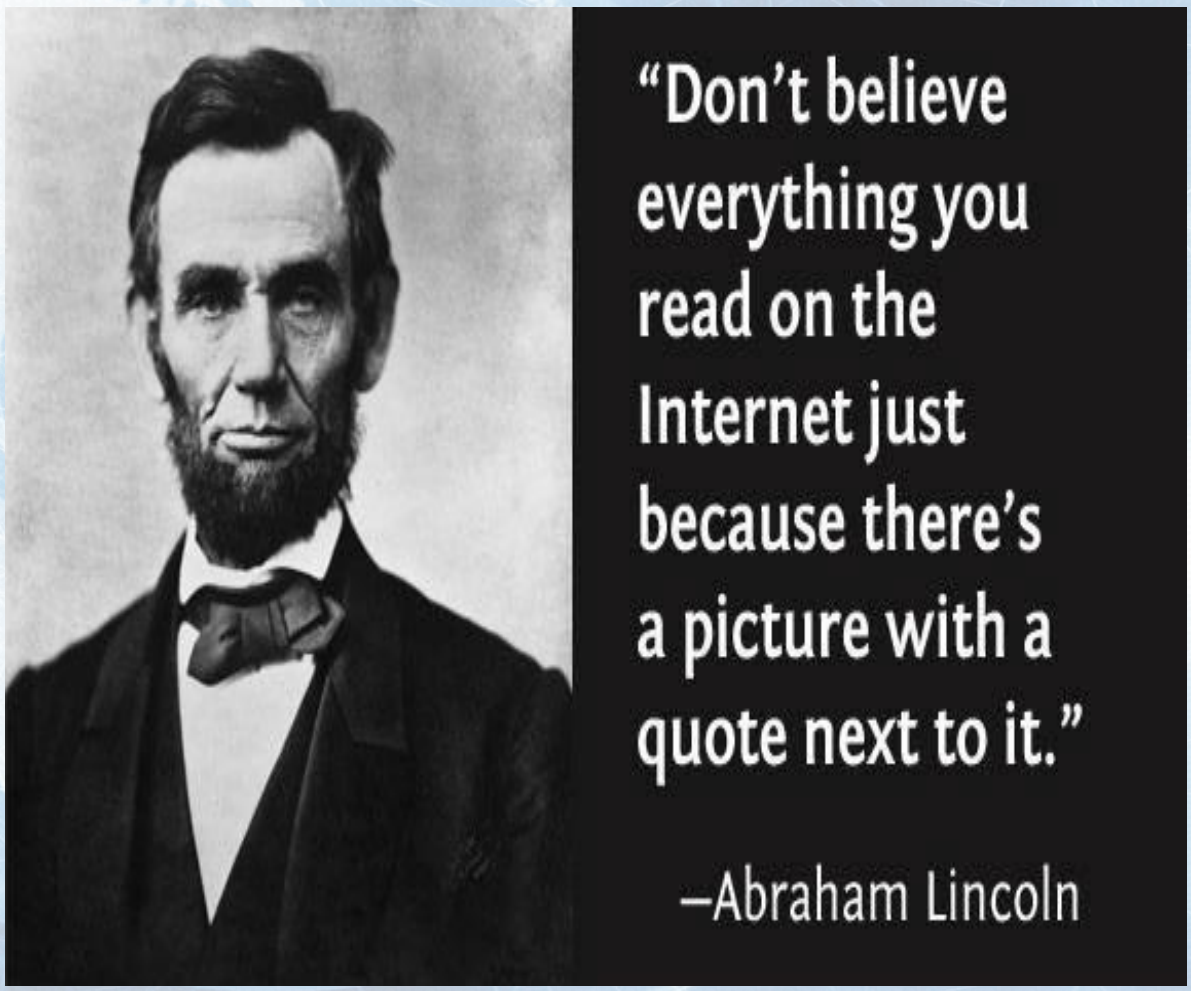
INSIGHTS

THEORY

Misinformation and Bubbles

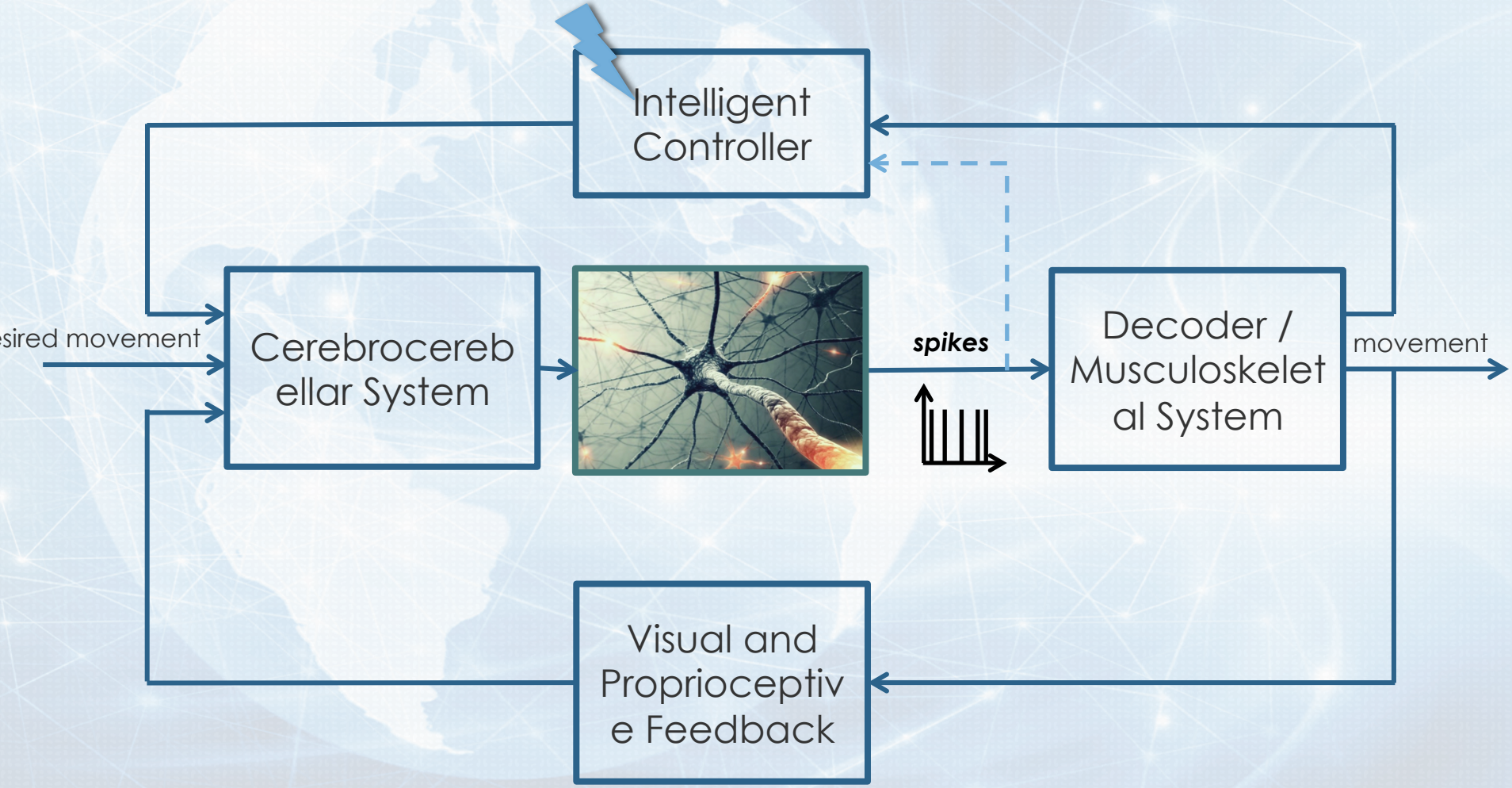
Social Media is Transforming Voting

Misinformation



Neuroscience and AI

Intelligent Control Meets Neuroscience



Market Place for Data

A Data Marketplace: Why design it now?

Data has become a currency

> **Personal data is the new oil of the internet & the new currency of the digital world.**
>
> **MEGLENA KUNEVA**, European Consumer Commissioner

Gross market inefficiencies currently present

Bloomberg

23andMe

nielsen

REUTERS

A Data Marketplace: Why design it now?

Urgent need to rigorously model data as an asset

How does the government design policy and litigate when a massive data breach occurs?

The Bridge

Mission of the Bridge

Enable, Expedite, Experiment

Create a facility to store, process and distribute data in a secure manner that can operate at scale. The facility will provide a variety of data processing services that can seamlessly operate on top of the stored data.

Architecture

Data Sets
(Secure Storage, curate Distribution, …)

Services
(Scientific Reproducibility, Machine Learning, Teaching, …)

Software
(Open Sources, Test, Experimental, …)

Economic, Shared
(Cloud) Infrastructure

DATA LAB

Cloud Service Providers
(Internal and External)

What will it empower?

Activities

- Host a variety of data sets; **MIT data**
- Ease of management, curation, and distribution of data
- Data driven end-to-end challenges (Kaggle style)
- "Reproducible" Science; broker for social data
- Education through teaching aid
- **Data Makerspace**
- (Most importantly) those not yet imagined,…

Associated research programs

- Data storage, security and interfaces
- Visualization
- Statistics / Machine Learning / Decision Making algorithms
- Educational Innovation
- (Most importantly) those not yet imagined,…

Thank You