

# Leveraging **TIBCO** for Analyzing Real-Time IoT Data

Team 5: Arnuv Arora, Casey Easterday, Harshitha  
Kuriminisetty, Shilin Yue



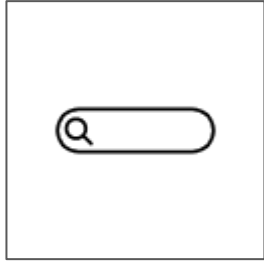
UNIVERSITY OF MINNESOTA

Driven to Discover<sup>SM</sup>

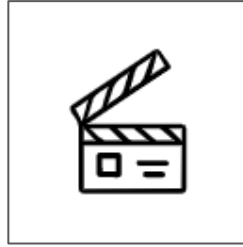
# Roadmap

- Setting the stage
  - Big data & the shortage of data science professionals
  - Internet of Things
- Introduce TIBCO
- TIBCO demonstration
  - Data visualization capabilities
  - IoT/data streaming
- Summary & Conclusions

# Big data is widespread, but there is a **shortage of data science professionals**



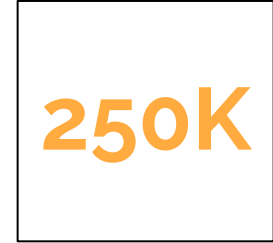
Google's  
autocomplete<sup>1</sup>



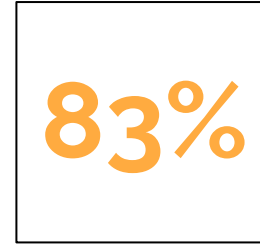
Netflix  
recommendations<sup>1</sup>



Fraud detection<sup>1</sup>



Shortage of data  
science/analytics  
professionals<sup>2</sup>



Companies  
investing in big  
data projects<sup>2</sup>

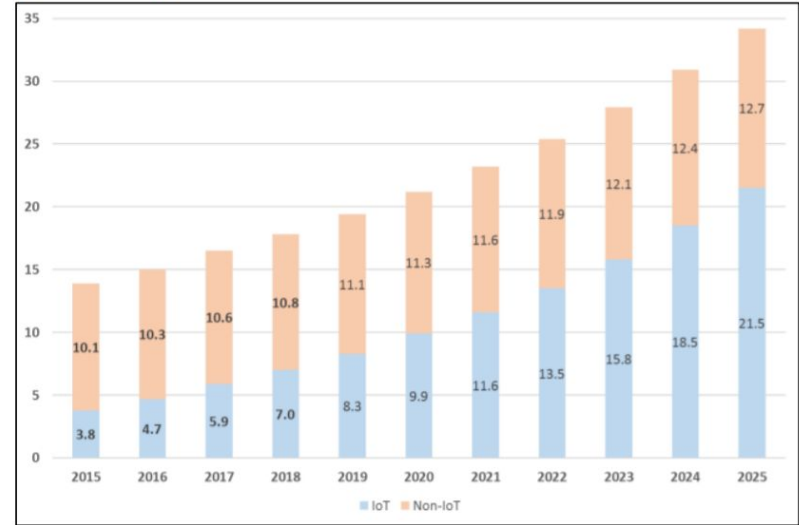
1. Anderson, J., Lee, R. (2012). Main Findings: Influence of Big Data in 2020. *Pew Research*.

2. Dubois, J. (2020). The Data Scientist Shortage in 2020. *Quanthub*.

# Internet of Things: One of the **fastest growing** areas of big data

- **Internet of Things (IoT):** "...a **collection** of electronic **devices** that can **share information** among themselves."<sup>3</sup>
- 25% of companies use IoT<sup>4</sup>
- IoT used across industries:
  - **Manufacturing:** monitor equipment
  - **Retail:** Track customer shopping carts
  - **Food-service:** monitor temperature of fryers

**Figure 1. Global Number of Connected Devices (\$ Billions)**



**Source:** Internet Analytics, August 8, 2018, <https://iot-analytics.com/state-of-the-iot-update-q1-q2-2018-number-of-iot-devices-now-7b/>.

3. Congressional Research Service. (2020). The Internet of Things (IoT): An Overview. [Crsreports.congress.gov](https://crsreports.congress.gov)

4. Dalqvist, F., Patel, M., Rajko, J., Shulman, J. (2019). Growing opportunities in the Internet of Things. [McKinsey.com](https://www.mckinsey.com).

# There is a need for more IoT-capable professionals

- Due to the shortage of data scientists and the increasing reliance on IoT, companies need to cope
- One solution: **train less technical staff**
- Need the right tools



Photo credit: prnewswire.com

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Photo credit: prnewswire.com

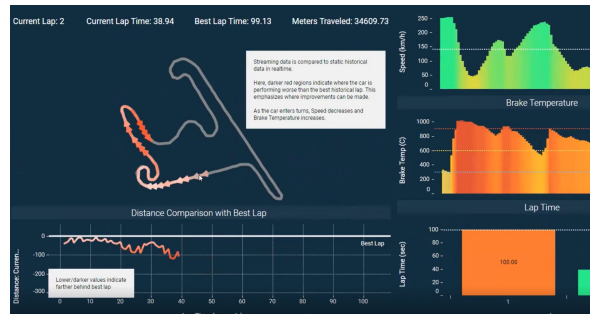
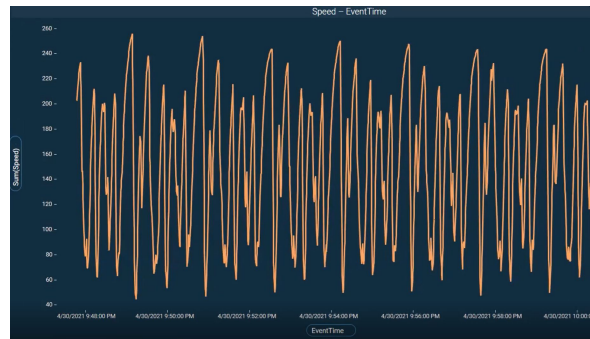
- Suite of **low-code** products for data analytics
- **Streaming/IoT-capable**
  - Apache Kafka
- **Cloud or on-premises** deployment
  - AWS, Azure, GCP
  - Docker, Kubernetes

# A TIBCO Demonstration

Mercedes Motorsport dataset

# In summary, **TIBCO** offers companies a **no- or low-code alternative for big data analytics**

- Increasing use of big data, streaming data (IoT)
- Shortage of DS professionals
- TIBCO offers an alternative





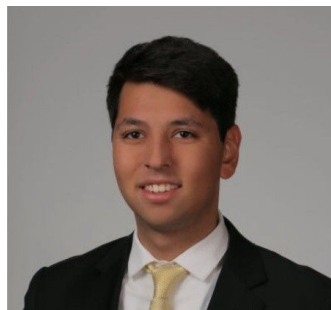
# Thank you!



Casey Easterday  
easte060@umn.edu



Harshitha Kuriminisetty  
kurimoo6@umn.edu



Arnuv Arora  
arora141@umn.edu



Shilin Yue  
yue00057@umn.edu