Matthew A. Beck

M.S. Applied Data Science Portfolio

About Me

- Global Business Insights Leader
- People & Products Connector
- Data Analytics Strategist
- Data Science Geek
- Relationship Builder who enjoys growing people and company profits through data

Why a Masters? Why Syracuse?

- Desire to supplement field practice with theory
- Exposure to a wider variety of disciplines
- Validate existing experience with universal recognition of my proficiency in the field
- Blended Curriculum with Whitman School of Management

Core Competency	Course	Projects
Describe a broad overview of the major practice areas of data science	• IST 687 – Applied Data Science	• All
Collect and organize data	• IST 659 - Data Admin Concepts & Database Management	• Metrics Engine
Identify patterns in data via visualization, statistical analysis, and data mining	• MAR 653 – Marketing Analytics	• Customer Segmentation
Develop alternative strategies based on the data	• MBC 638 – Data Analysis and Decision Making •	• Process Improvement Project – Reducing Survey Creation Time
Develop a plan of action to implement business decisions derived from analyses	• IST 718 – Big Data Analytics	• Hops and Hatha Image Recognition
Demonstrate communication skills regarding data and its analysis for relevant professionals in their organization	• IST 772 – Quantitative Reasoning in Data Science	• State of Vaccination Rates in California School Districts Report
Synthesize the ethical dimensions of data science practice (e.g., privacy).	• IST 659 – Data Admin Concepts & Database Management	• Metrics Engine, Personal notes from live lectures

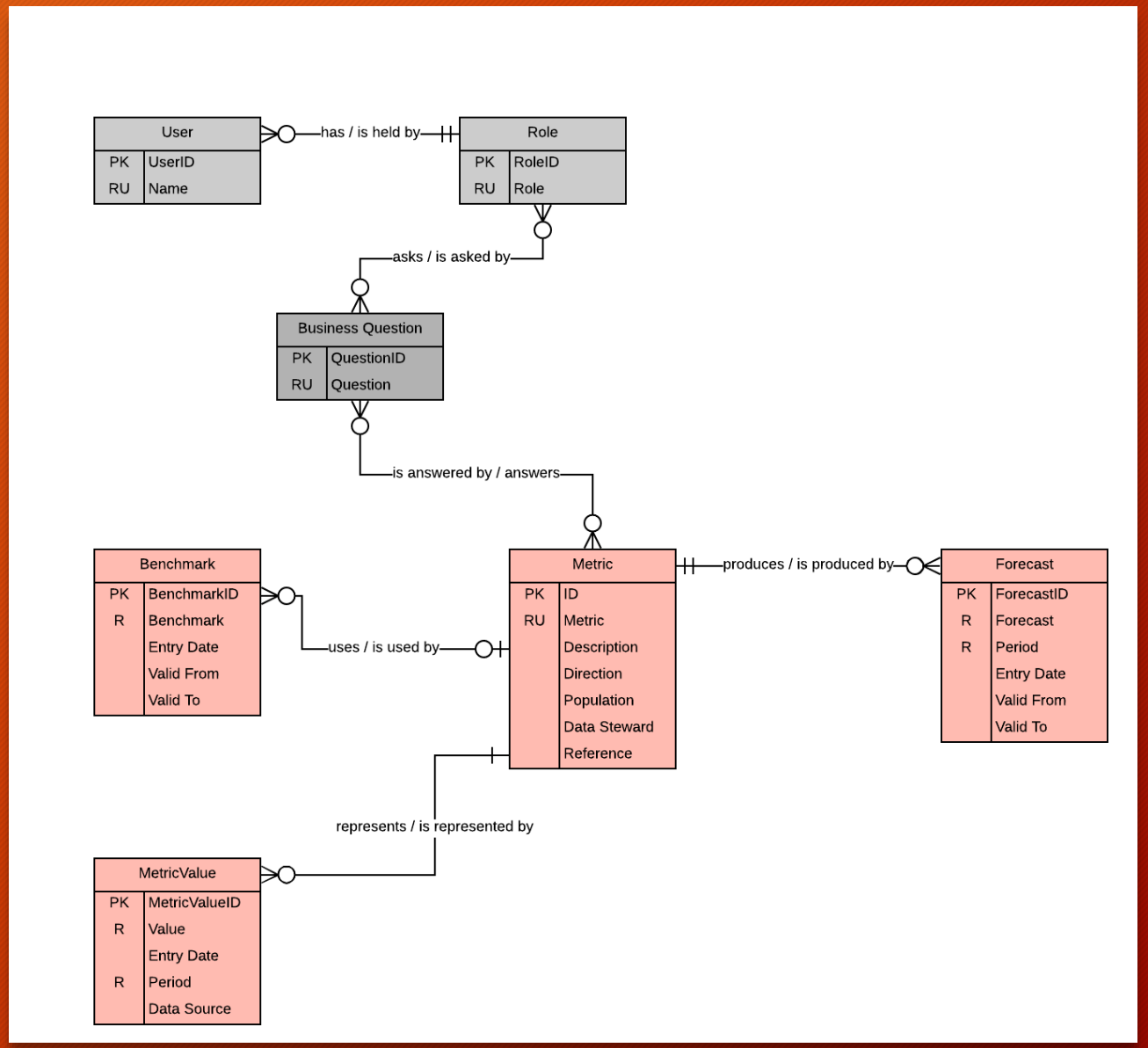
Core Competencies

Describe a broad overview of the major practice areas of data science

- *Collection, Preparation, analysis, visualization, management, and preservation of large collections of information* (Salz, IST 687 Week 1 Lecture)

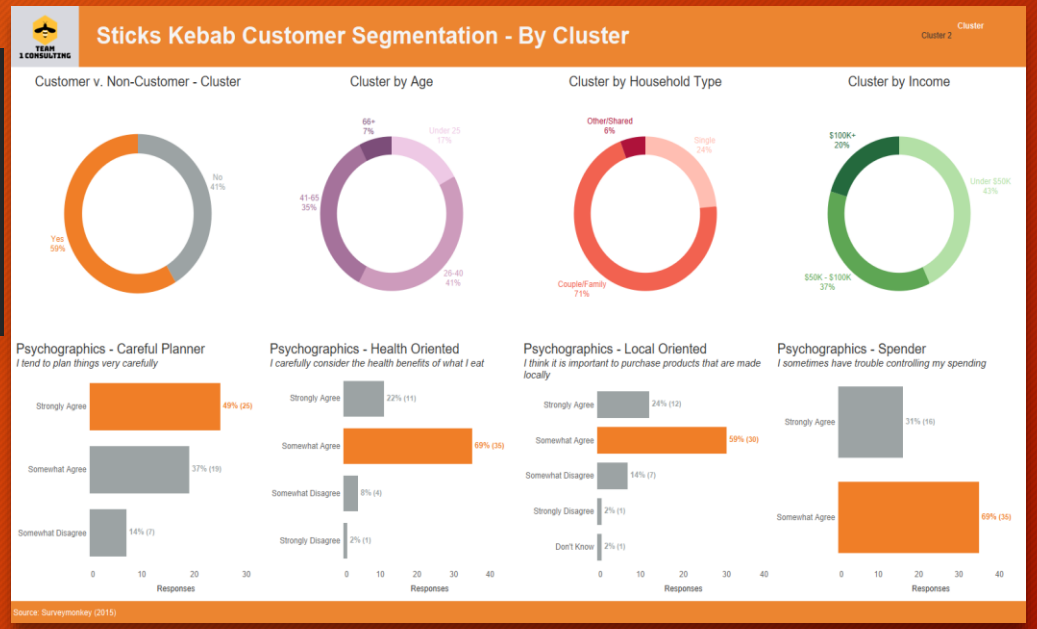
Collect and Organize Data

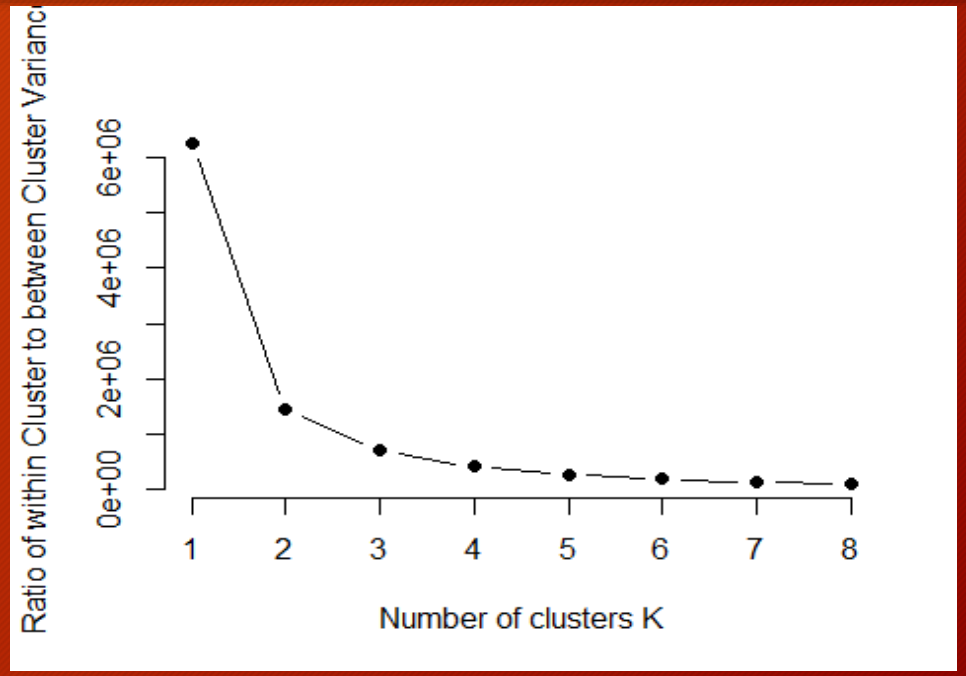
- Metrics Engine – IST 659 Data Admin Concepts & Database Management
- Designed to meet the needs of my current employer
- Complex hierarchical business structure, with multiple departments and use cases
- Goal was to link metrics to the vital questions of the business in a fashion accessible to the business
- Evolved into my current work as Technical Lead on this project



Identify patterns in data via visualization, statistical analysis, and data mining

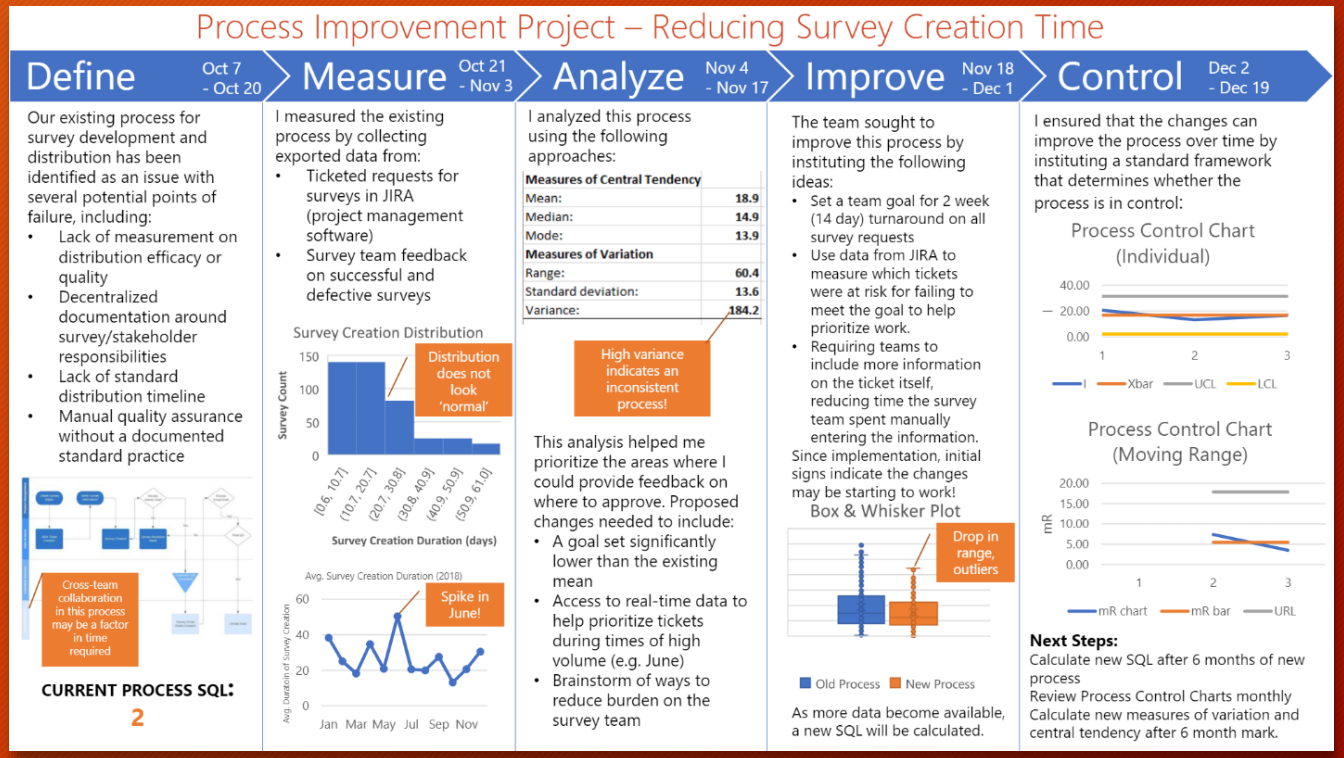
- Customer Segmentation – MAR 653 Marketing Analytics
- Group project – task was to derive customer segments from regional survey data and provide recommendations based on clusters
- Personal contribution was the **preparation**, **analysis**, and **visualization** of the data





Develop alternative strategies based on the data

- Survey Process Improvement - MBC 638 Data Analysis & Decision Making
- Application of principles in class to real-world problems
- **Collected, Prepared, Analyzed** and **Visualized:**
  - Points of failure in existing process
  - Executive impact
  - Reduction in overall survey cost, time to create
  - Control measures to ensure changes worked



Develop a plan of action to implement the business decisions derived from the analyses

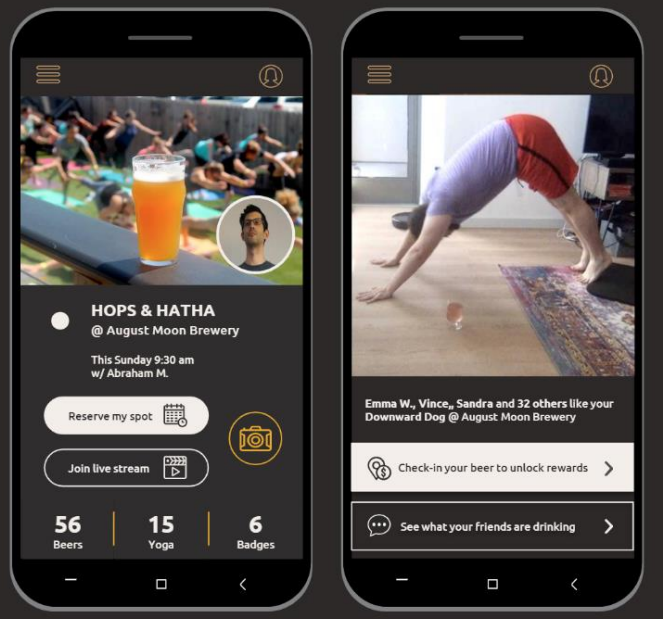
- Hops and Hatha - IST 718 Big Data Analytics
- Develop Image Recognition features for a fictional business client, powered by neural networks
- Personal contribution was the development of the business case, coordinating team progress, and providing analysis of the results

RECOMMENDATIONS

Feature Identification and Object Recognition are close cousins, but not siblings. Tuning models beyond baseline accuracy becomes a true mix of art and science. A specialized approach is therefore recommended.

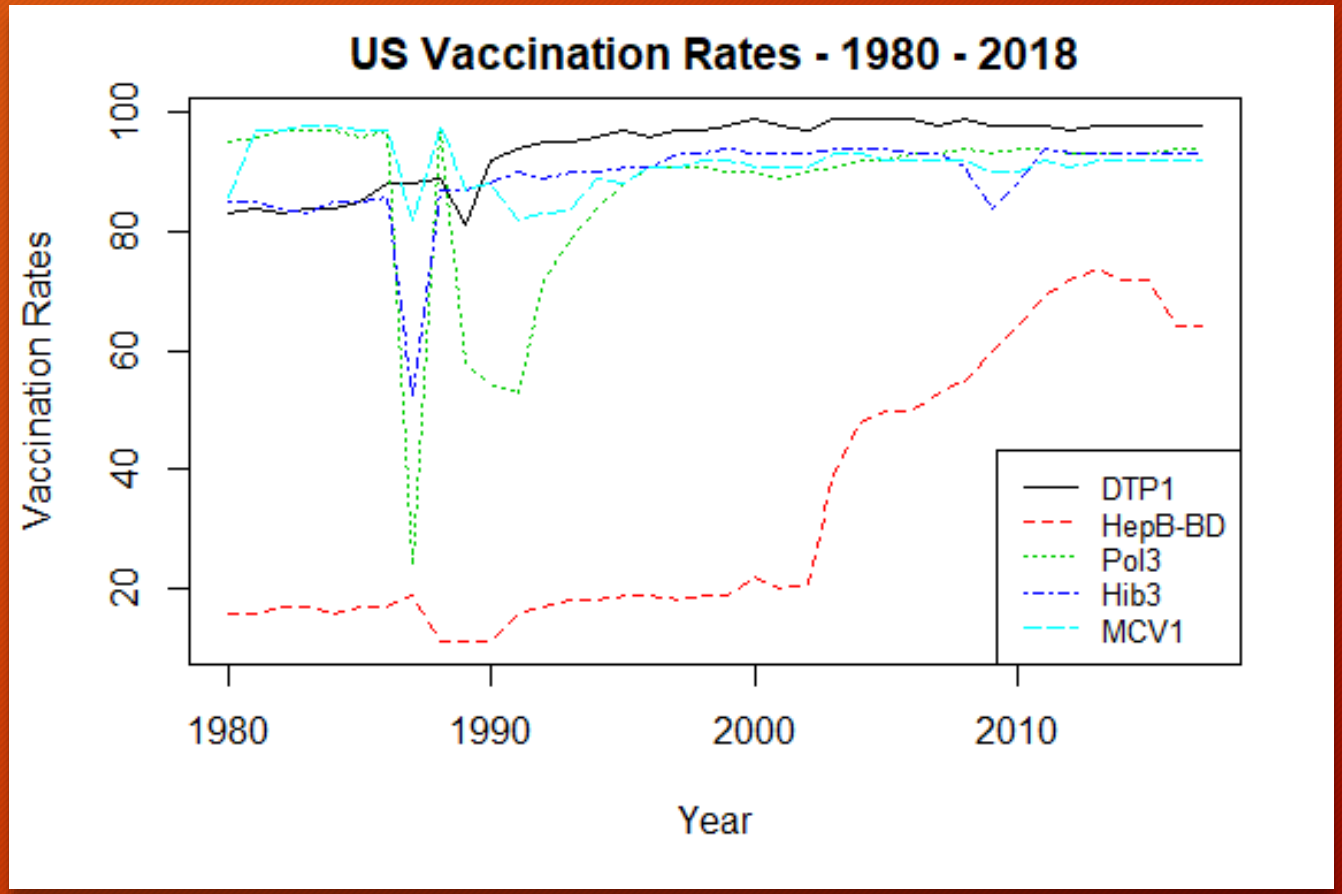
Effective model training can be achieved through online image sourcing, however alternate approaches such as pose estimation (identifying joints and body parts) may also be considered.

Technologies like AR, Google Lens etc. are backed by powerful engines and skilled engineers - deploying this feature in an app may incur significant costs.



Demonstrate communication skills regarding data and its analysis for relevant professionals

- State of Vaccination Rates in California -IST 772 Quantitative Reasoning in Data Science
- Drafted analytic report intended for legislative audience
- Explored relationships between vaccination reporting completion and student to school ratio
- Utilized multiple methods of statistical analysis (Bayesian, Frequentist) to provide recommendations to a non-technical audience



Synthesize the ethical dimensions of data science practice

Practitioners in data science have an obligation to accurately and faithfully represent the data obtained, in every step of the process. Simply having access to data does not mean it should be used, especially if its use creates negative impact.

- **Metrics Engine – Revisited**
- Translated business rules into role-based access controls
- Providing perspective on both the world as it is, and where the world could be.
- Wisdom must be exercised to ensure analysis is not used to perpetuate existing problems
  - Medicine
  - Poverty
  - Law Enforcement
  - Climate Change

Executive - Primary audience for business KPIs, reviews them with managers to gauge department performance

Manager - Relies on KPIs to measure their department's performance, reviews with executives, analysts, and staff.

Analyst - Helps identify trends and produces reporting for managers to use in conversations with executives.

Staff - Individuals who generate the actual business output measured by KPIs.

Final Thoughts

- THANK YOU!

Reflecting on my experience as a student in this program, I'm grateful for the opportunity to hone my craft and apply this knowledge to life moving forward. Not only has this program helped improve my data literacy, but it has provided all the necessary tools to collect, prepare, analyze, visualize, manage, and preserve data with great confidence and expanded understanding. I look forward to applying these methods to my remaining work in the semester, and in the opportunities to come.

Please Connect with me on LinkedIn:
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