AI Models and Techniques

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Building vs Buying

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Always Start with a Use Case!

- What is the exact problem you are trying to solve?
  - Avoid being vague.
  - What data do you have available?

- Is there a need for AI to solve the problem?
  - Is the problem complex?

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What Type of Data do you have?

- Metrics, Logs, Events, Topology, Tickets, Chats…
- Is your data labelled?
  - Required for Supervised Learning
  - Helpful for Testing
- Acquiring – streaming or batch?
- Preprocessing / Transforming

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Find an approach that matches your use case!

- Regression/Estimation
- Classification
- Clustering
- Association Rules
- Anomaly Detection

- Many others!

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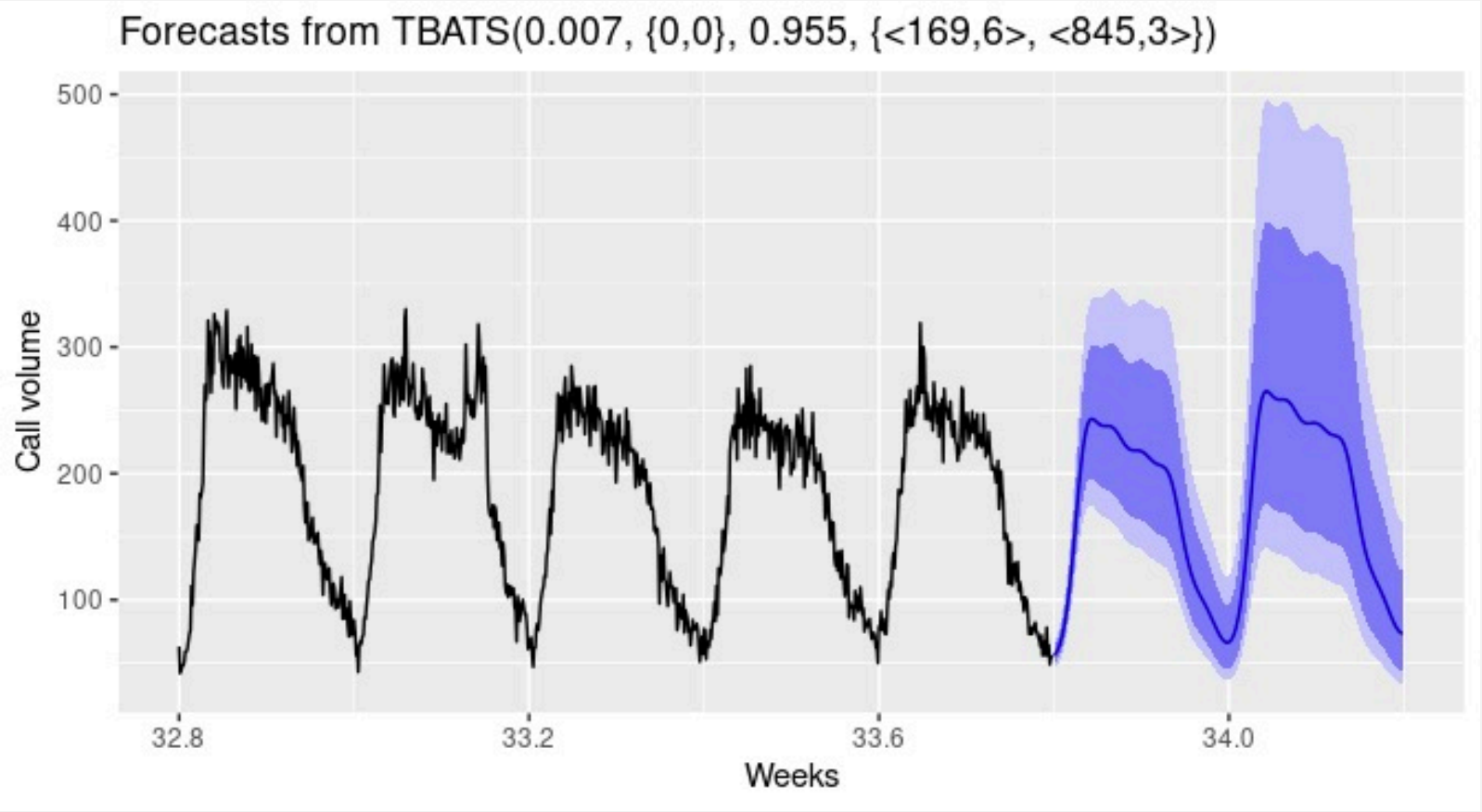
Regression / Estimation

- Forecasting
- Capacity Planning



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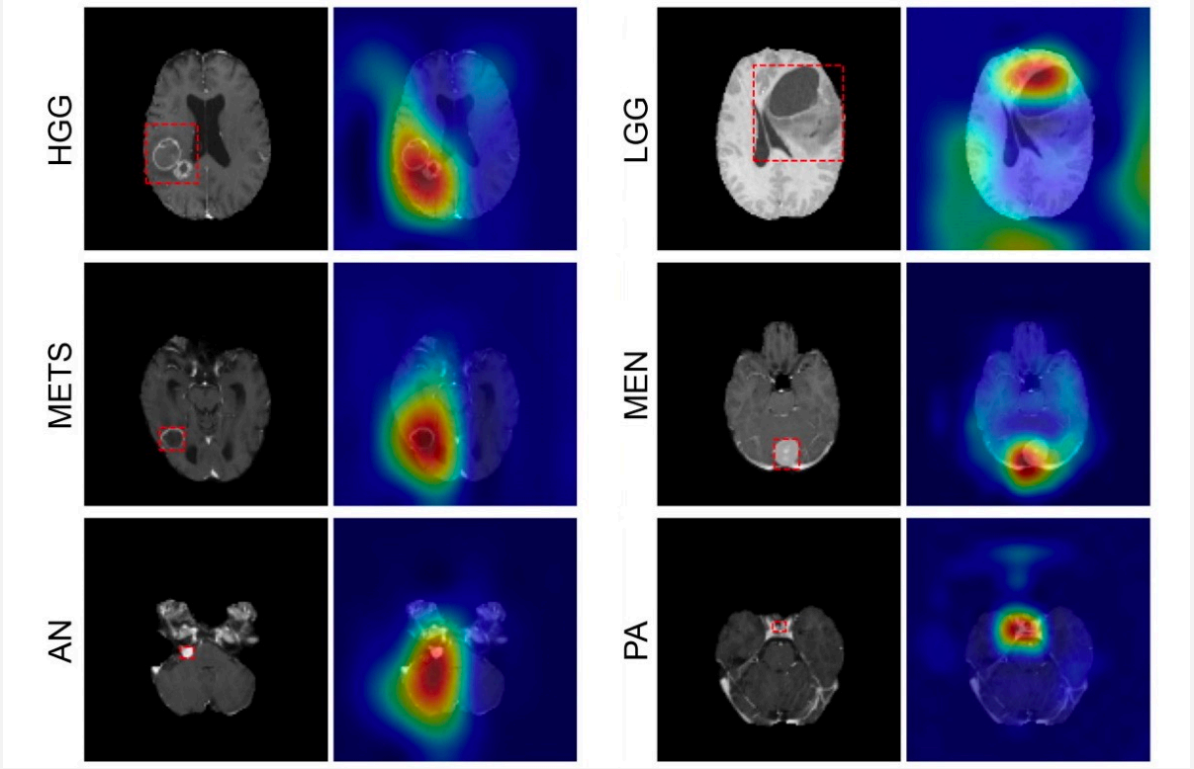
Classification

- Is this input more like A or B?
  - Limited set of outcomes.
- “Is my system good or bad”?
- Can be implemented with a neural network using images as an input.



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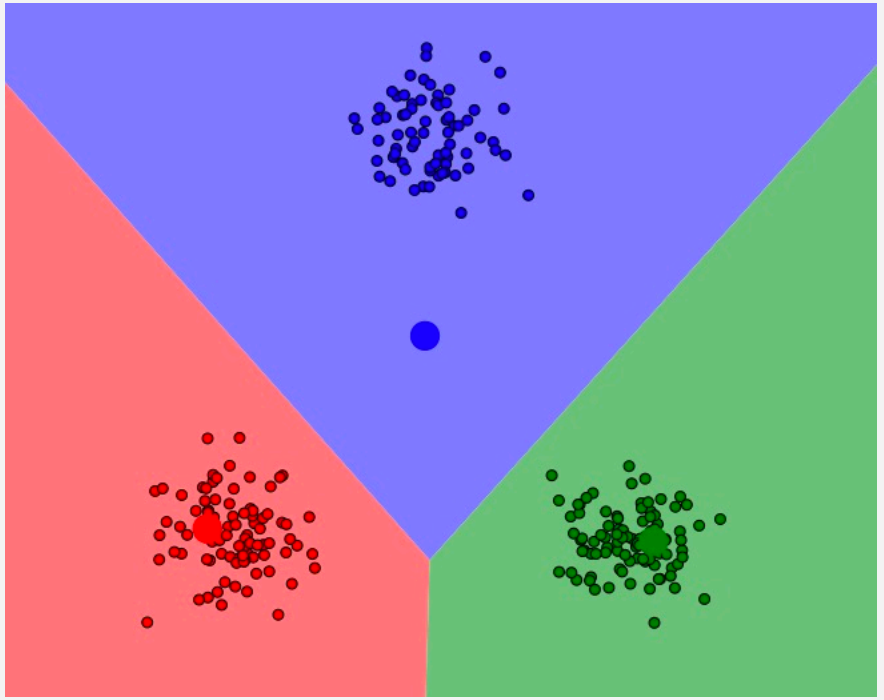
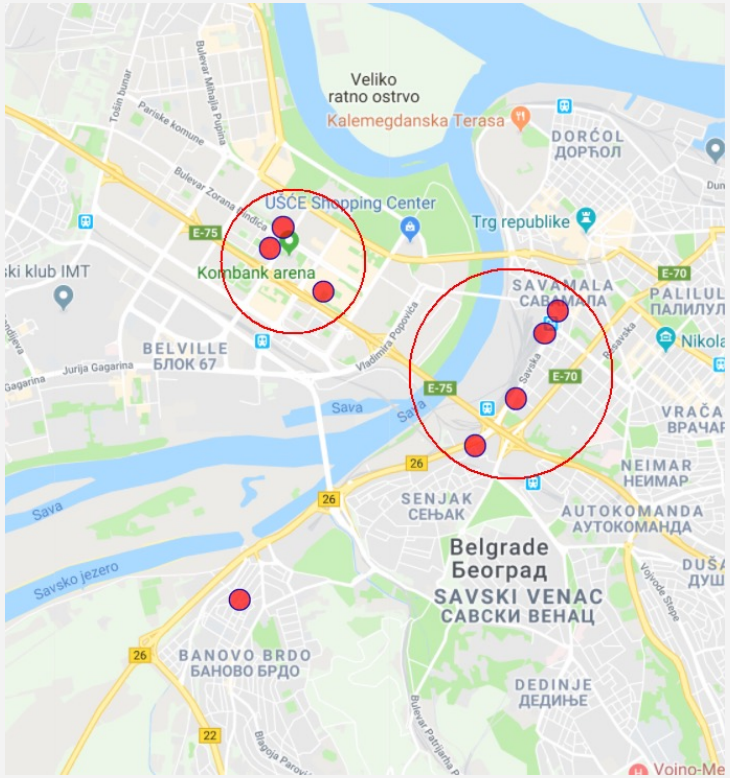
Clustering

- Unsupervised
- K-Means
- DBSCAN





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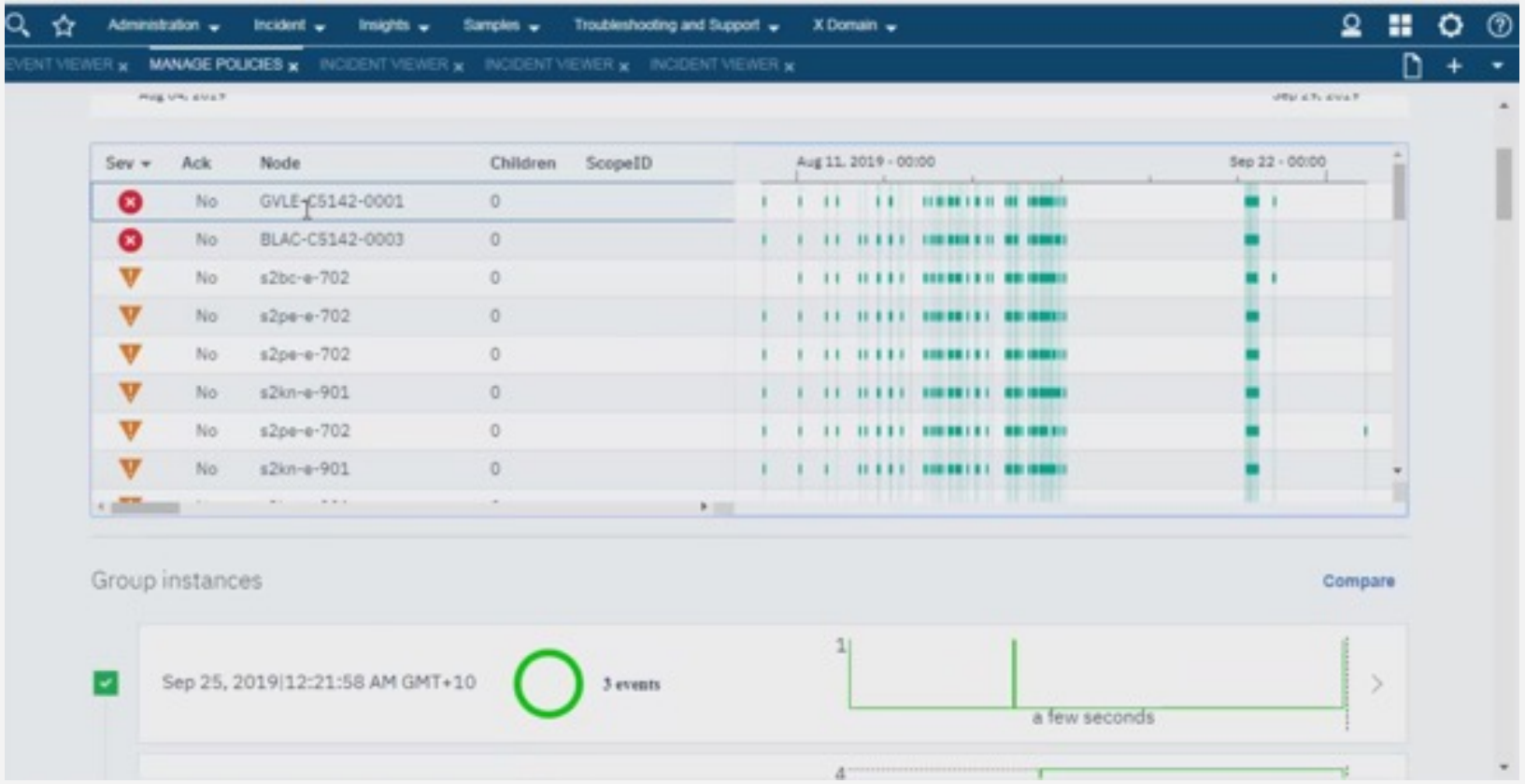
Association Rules

- Discover things that tend to co-occur
  - “Bread and Milk are frequently purchased together”.



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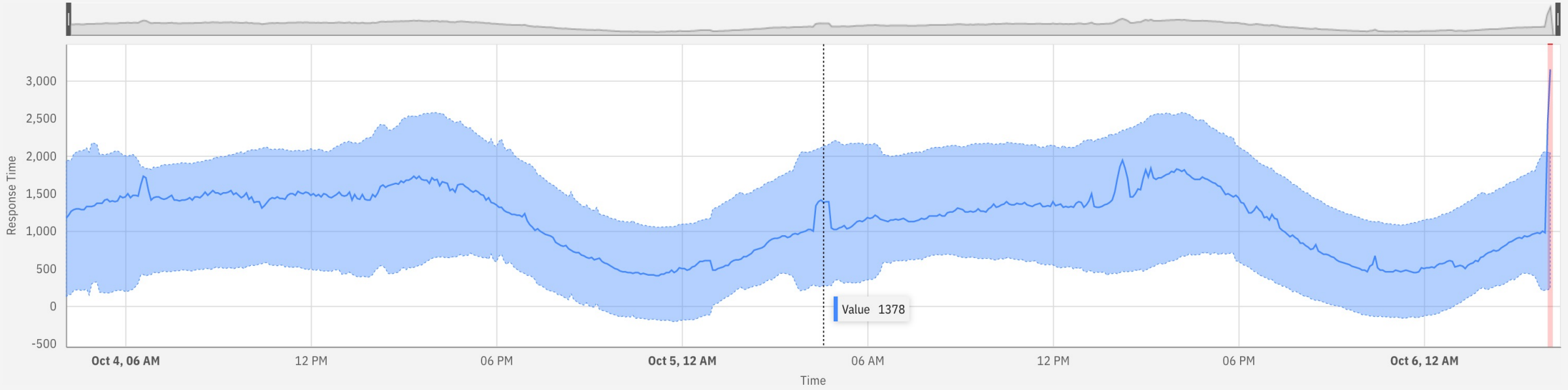
Anomaly Detection

- Learn normal behaviour, and then detect when it significantly changes.
- Common for timeseries, but can also be performed on unstructured data like logs, or topology.



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Pick an Algorithm and implement

- Forecasting
  - Linear Regression
  - ARIMA
  - Holt-Winters
  - BATS
  - Prophet
  - LSTM
- Parameters
- Training

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Measuring Quality

- Labelled data
- “Is the algorithm doing well?”
- False positives
- Post-processing

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Production

- Scale
- Explainability
- Actionability

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Thank you

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