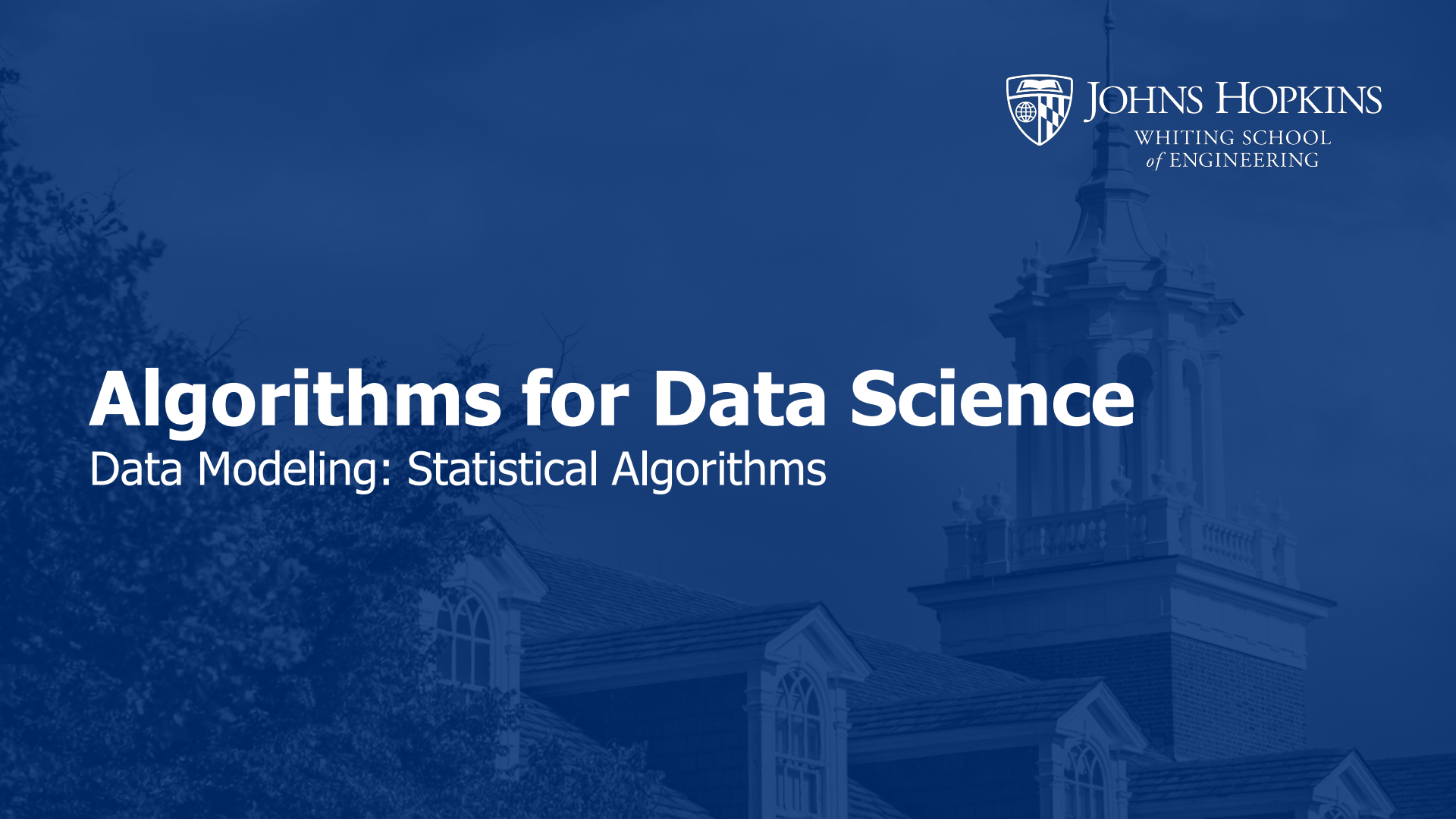


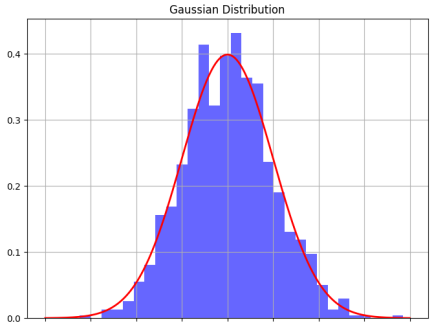
Algorithms for Data Science

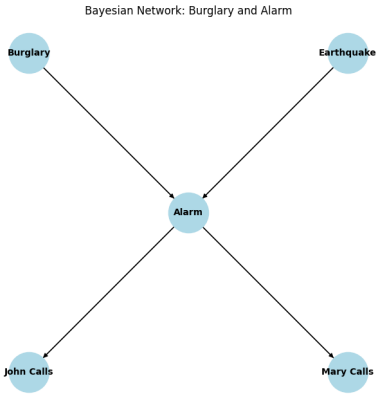
Data Modeling: Statistical Algorithms

Statistical Algorithms

How do we make decisions when data is incomplete or uncertain?

- How do doctors predict the likelihood of a disease based on limited symptoms?
- What allows scientists to uncover hidden topics in large text datasets?





Statistical algorithms embrace uncertainty, using probability to make informed decisions in the face of incomplete or noisy data.

Statistical Algorithms

Statistical algorithms use probability and statistical inference to analyze, predict, and make decisions from noisy or incomplete data.

Parameter Estimation	Latent Variable Modeling	Probabilistic Classification	Generative Modeling
Estimate values of unknown parameters in a dataset such as predicting missing values in time series data.	Uncover hidden structures or variables such as for topic modeling in textual data.	Classify data points based on probabilities such as Naive Bayes classifiers for email spam detection.	Leveraging Variational Autoencoders and their ability to create synthetic data by learning distributions.