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Expectation Maximization and Ensemble Structure Learning in the Presence of Latent Variables

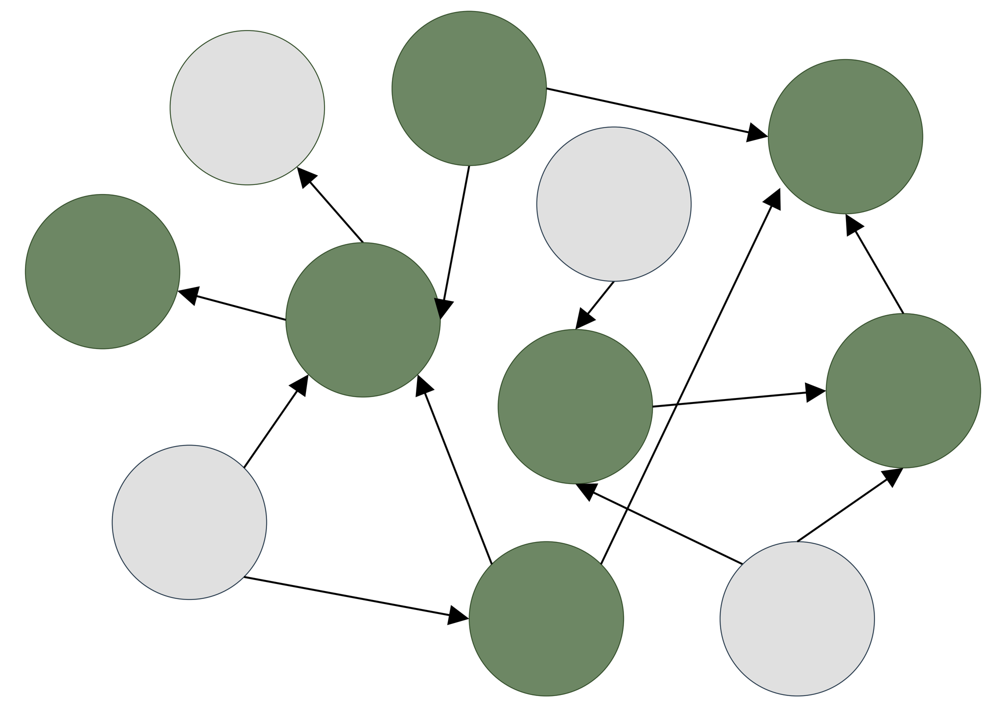
USE CASE: The Identification and Progression Tracking of Alzheimer's Disease

C

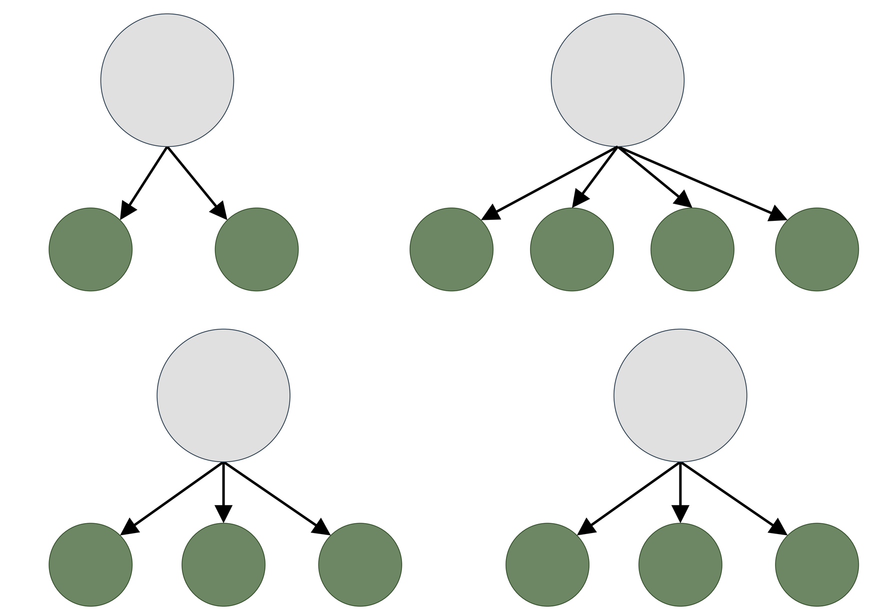
We want to handle missing or unmeasurable data and uncover the underlying distributional mechanisms that influence observed phenomena. Thus enhancing the interpretability of complex systems, for better informed decision-making and advancing domain-specific knowledge.

Method

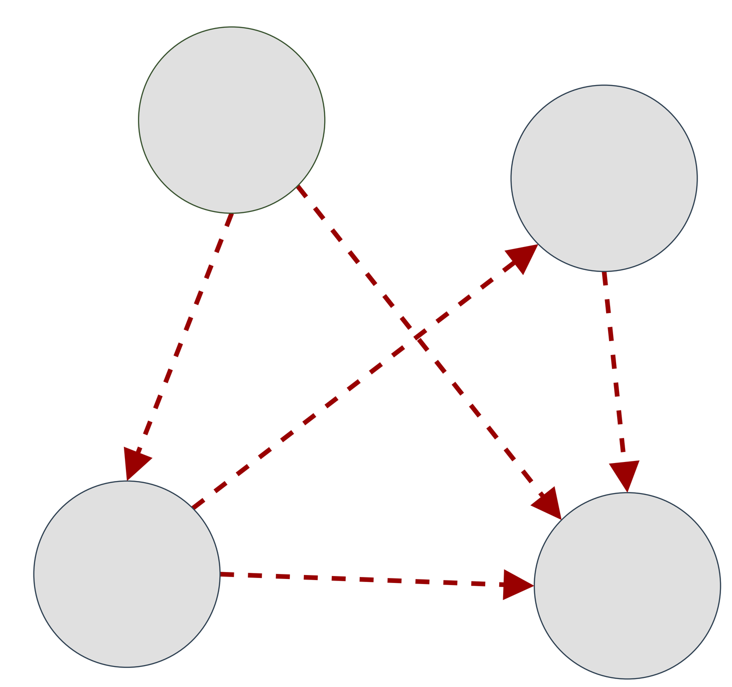
Proposed underlying true distribution **M*** as a static Bayesian Network



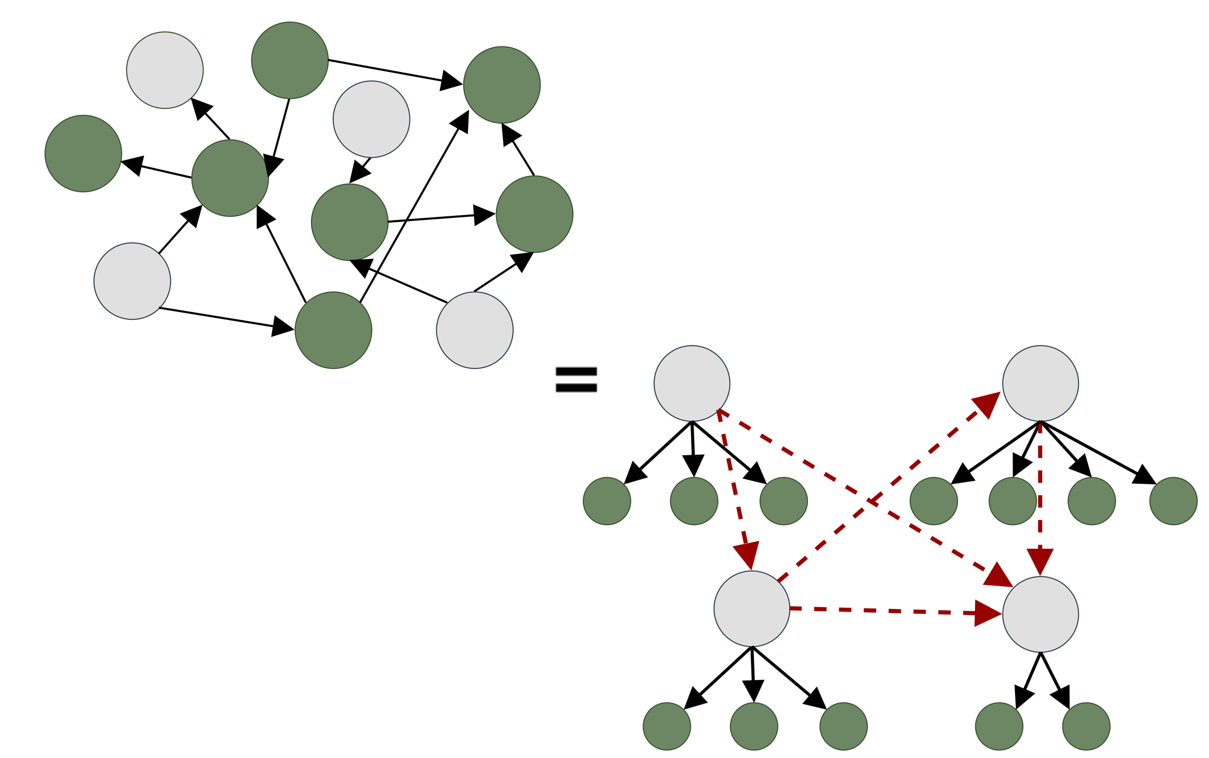
Latent variables are **relearned** from the observable data using EM Clustering



We learn the structure **M** between latent variables and estimate the parameters



We then compare the learned structure **M** against **M*** using KL Divergence



EM & STRUCTURE LEARNING IN THE PRESENCE OF LATENT VARIABLES
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