

A Bayesian Approach To Task Prioritization

Problem: how can we prioritize tasks given multiple, conflicting goals?

This model addresses the challenge of prioritizing tasks when there are multiple goals that may conflict with each other. Humans routinely deal with this challenge in a variety of unique ways that depend on the individual's preferences, which are rarely quantified. Not only are these prioritization schemes unquantified, but they are also subject to the emotions that can sway an individual to make illogical decisions. Although the human challenge of deciding what to do at this moment is far more complex than optimizing goals, this work seeks to develop a model for a purely logical task prioritization scheme.

Research Question

This model seeks to determine an optimal balance of time devoted to achieving a set of goals for a given individual. When compared with how the individual actually spends her time, can we determine a pattern to the state of the system (the individual's state and the tasks deemed to be highest priority) when the individual's selected task matches the model's recommended task?

Proposed Model

Given multiple, conflicting goals, the decision of which task to prioritize is highly dependent on the how the individual feels - his/her current state. This complex set of relationships between the individual's current level of sleepiness, hunger, happiness, etc. and her decision of which task to prioritize can be represented with a Bayesian Network, which handles these conditional dependencies.