Bayesian Statistics

Basic Bayes Networks

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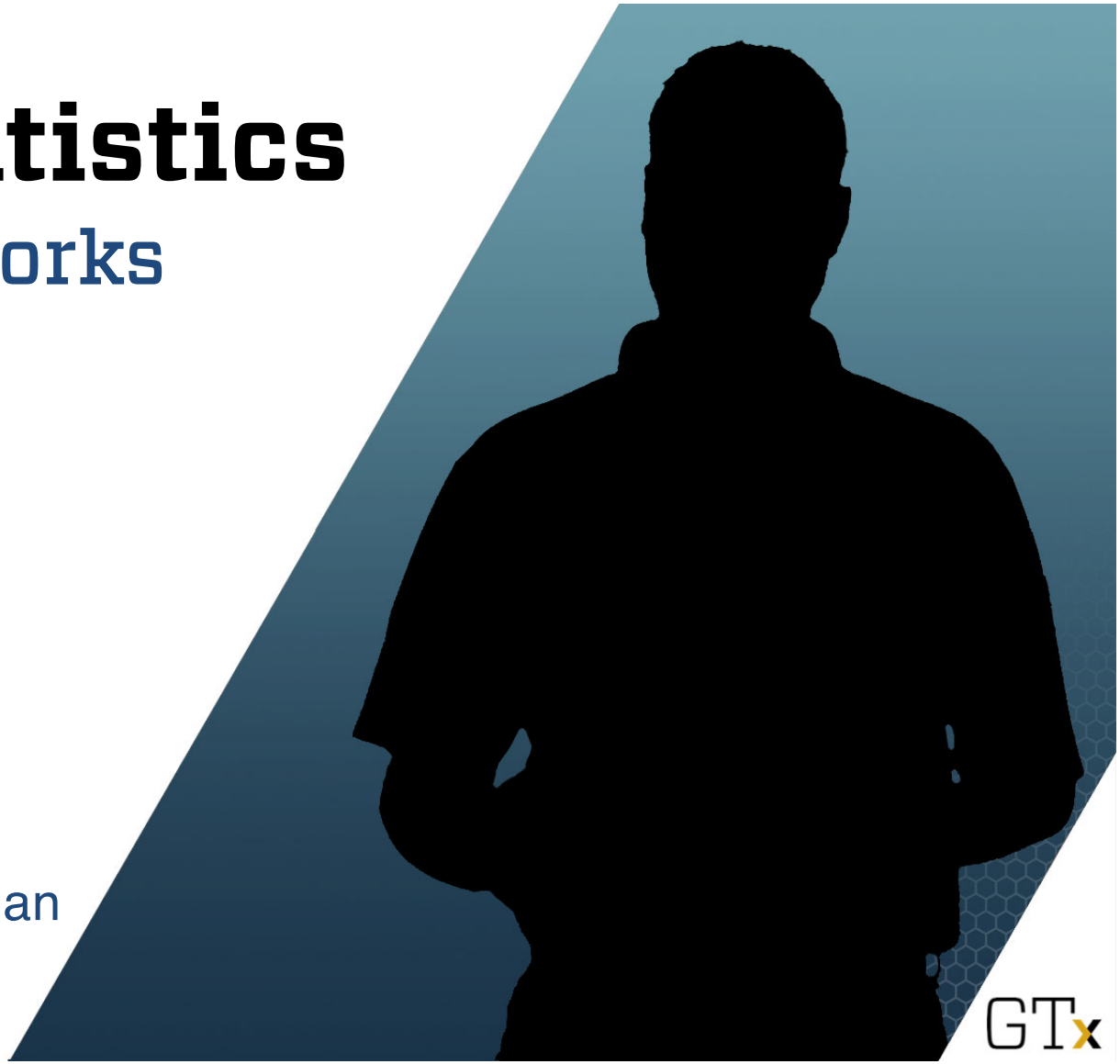
More on WinBUGS & DAG, Propagation of Evidence with an Example of Alarm



Before We Begin...

More on WinBUGS

In WinBUGS:

- dcat($p[\,]$) is a categorical random variable with values $1,2,\ldots,n$ with probabilities in vector $p = (p_1,\ldots,p_n)$
- One can condition by taking p to be $2, 3$, etc dimensional array

  dcat($p[m,\,]$), m fixed
- Example: Manufacturing Bayes in WinBUGS.

GTx

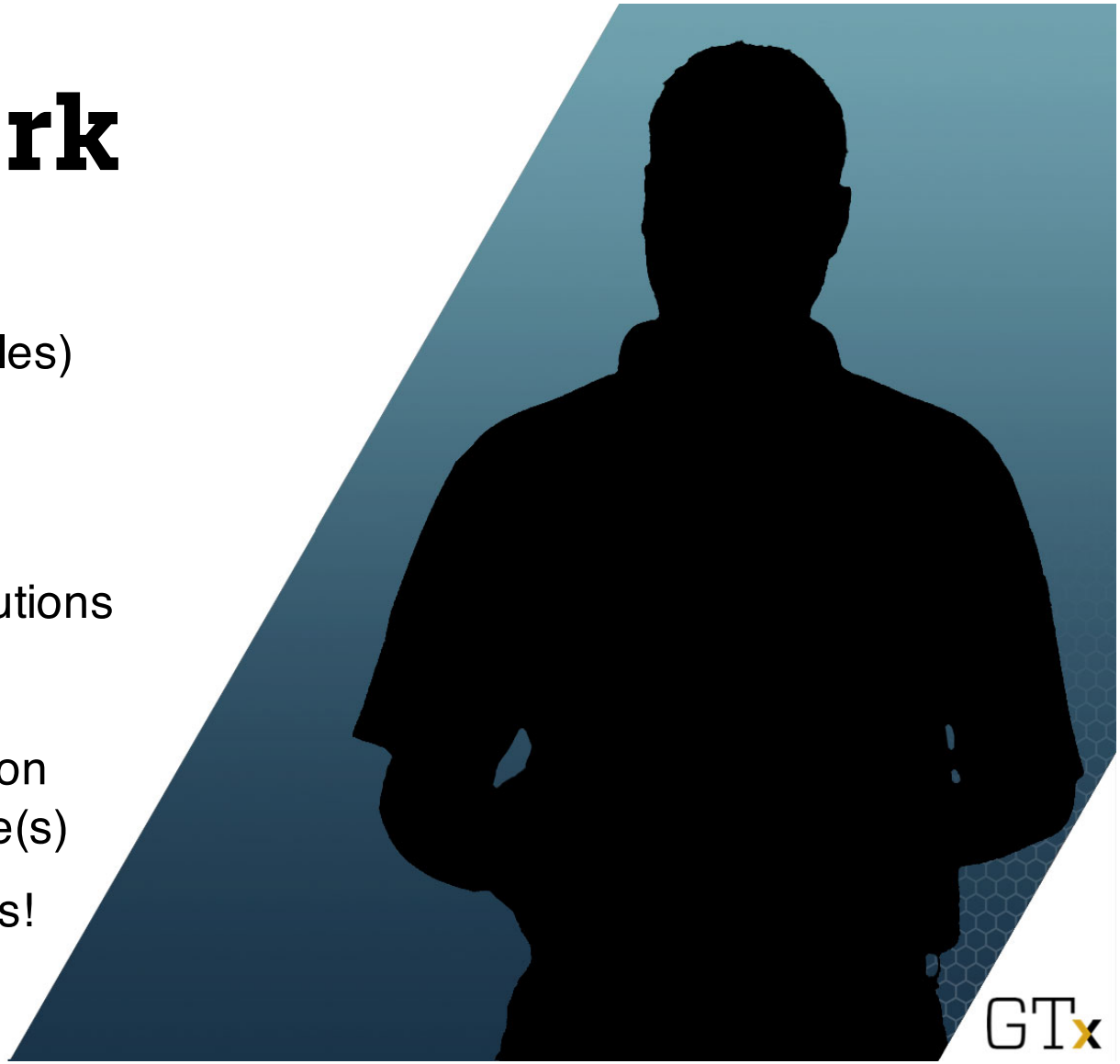
Bayes Network

Oriented acyclic graph

- Nodes (events, random variables)
- Arrows (causal relations)
- Joint distribution of nodes ≡

  product of conditional distributions

  + markovian property
- Given history, a node distribution depends only on parental node(s)
- Learn about unobserved nodes!



Bayes Net: ALARM

WinBUGS code

GTx

Summary


GTx