

732A96 Advanced Machine Learning

Graphical Models and Hidden Markov Models

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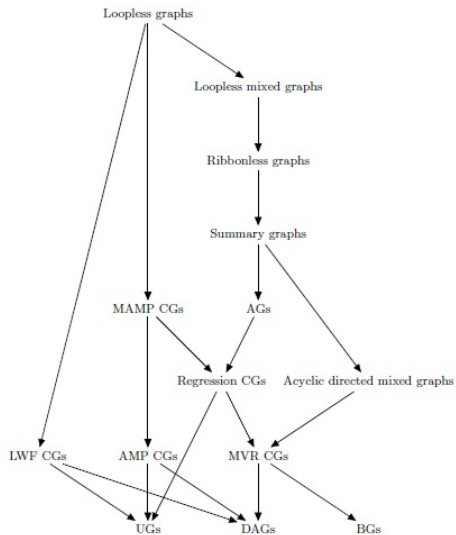
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Literature

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- ▶ Additional sources
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- ▶ R packages
 - ▶ bnlearn
 - ▶ Package documentation.
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 - ▶ Scutari, S. Learning Bayesian Networks with the bnlearn R Package. *Journal of Statistical Software* 35, 2010.
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Families of Graphical Models




Relevance of Graphical Models




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BIRTH:
September 4, 1936, Tel Aviv.


EDUCATION:
B.S., Electrical Engineering (Technion, 1960); M.S., Electronics (Newark College of Engineering, 1961); M.S., Physics (Rutgers University, 1965); Ph.D., Electrical Engineering (Polytechnic Institute of Brooklyn, 1965).


EXPERIENCE:


JUDEA PEARL


United States – 2011


CITATION
For fundamental contributions to artificial intelligence through the development of a calculus for probabilistic and causal reasoning.

 [SHORT ANNOTATED BIBLIOGRAPHY](#)

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Judea Pearl created the representational and computational foundation for the processing of information under uncertainty.

He is credited with the invention of *Bayesian networks*, a mathematical formalism for defining complex probability models, as well as the principal algorithms used for inference in these models. This work not only revolutionized the field of artificial intelligence but also became an important tool for many other branches of engineering and the natural sciences. He later created a mathematical framework for *causal inference* that has had significant impact in the social sciences.

Judea Pearl was born on September 4, 1936, in Tel Aviv, which was at that time administered under the British Mandate for Palestine. He grew up in *Bnei Brak*, a Biblical town his grandfather went to reestablish in 1924. In 1956, after serving in the Israeli army and joining a Kibbutz, Judea decided to study engineering. He attended the Technion, where he met his wife, Ruth, and received a B.S. degree in Electrical Engineering in 1960. Recalling the Technion faculty members in a 2012 interview in the *Technion Magazine*, he emphasized the thrill of discovery:

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