Graphical Models

Foundations of Neural Computation

edited by

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Terrence J. Sejnowski

Graphical Models

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Graphical models use graphs to represent and manipulate joint probability distributions. They have their roots in artificial intelligence, statistics, and neural networks. The clean mathematical formalism of the graphical models framework makes it possible to understand a wide variety of network-based approaches to computation, and in particular to understand many neural network algorithms and architectures as instances of a broader probabilistic methodology. It also makes it possible to identify novel features of neural network algorithms and architectures and to extend them to more general graphical models.

This book exemplifies the interplay between the general formal framework of graphical models and the exploration of new algorithms and architectures. The articles, which are drawn from the journal *Neural Computation*, range from foundational papers of historical importance to results at the cutting edge of research.

Michael I. Jordan is Professor of Electrical Engineering and Computer Science and of Statistics at the University of California, Berkeley. He is the editor of *Learning in Graphical Models* (MIT Press, 1999).

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