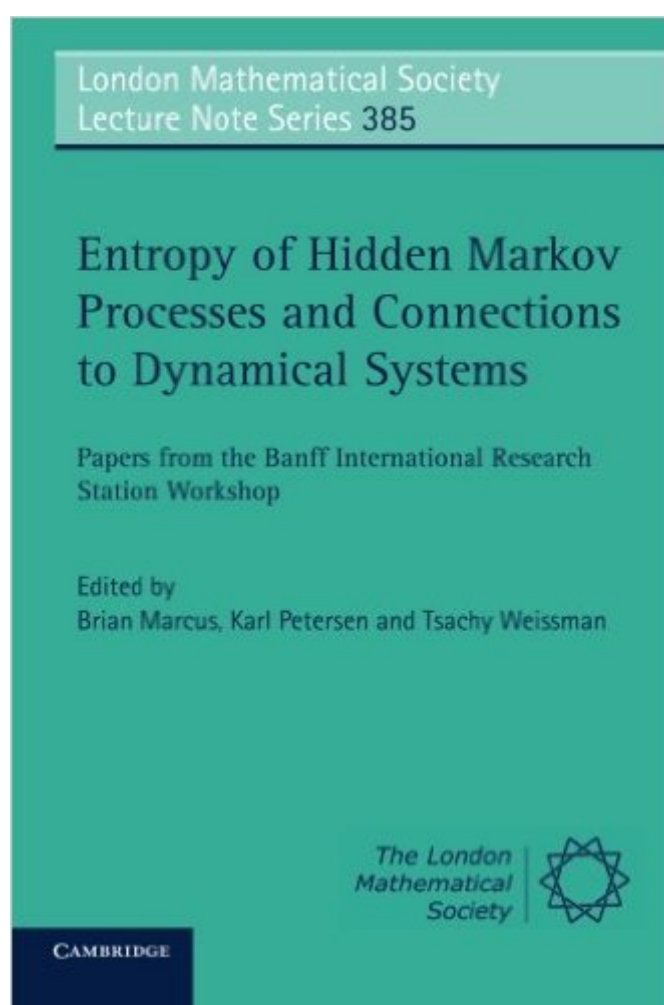# Entropy Of Hidden Markov Processes And Connections To Dynamical Systems: Papers From The Banff International Research Station Workshop (London Mathematical Society Lecture Note Series)

London Mathematical Society
Lecture Note Series 385

## Entropy of Hidden Markov Processes and Connections to Dynamical Systems

Papers from the Banff International Research Station Workshop

Edited by
Brian Marcus, Karl Petersen and Tsachy Weissman

The London Mathematical Society

CAMBRIDGE

# Synopsis

Hidden Markov processes (HMPs) are important objects of study in many areas of pure and applied mathematics, including information theory, probability theory, dynamical systems and statistical physics, with applications in electrical engineering, computer science and molecular biology. This collection of research and survey papers presents important new results and open problems, serving as a unifying gateway for researchers in these areas. Based on talks given at the Banff International Research Station Workshop, 2007, this volume addresses a central problem of the subject: computation of the Shannon entropy rate of an HMP. This is a key quantity in statistical physics and information theory, characterizing the fundamental limit on compression and closely related to channel capacity, the limit on reliable communication. Also discussed, from a symbolic dynamics and thermodynamical viewpoint, is the problem of characterizing the mappings between dynamical systems which map Markov measures to Markov (or Gibbs) measures, and which allow for Markov lifts of Markov chains.

# Book Information

Series: London Mathematical Society Lecture Note Series (Book 385)

Paperback: 280 pages

Publisher: Cambridge University Press; 1 edition (June 30, 2011)

Language: English

ISBN-10: 0521111137

ISBN-13: 978-0521111133

Product Dimensions:  6 x 0.6 x 9 inches

Shipping Weight: 13.4 ounces (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #4,054,410 in Books (See Top 100 in Books)   #93 in Books > Science & Math > Physics > Entropy   #1233 in Books > Science & Math > Mathematics > Pure Mathematics > Discrete Mathematics   #8182 in Books > Textbooks > Science & Mathematics > Mathematics > Statistics

Entropy of Hidden Markov Processes and Connections to Dynamical Systems: Papers from the Banff International Research Station Workshop (London Mathematical Society Lecture Note Series) Localization in Periodic Potentials: From Schrödinger Operators to the Gross-Pitaevskii Equation (London Mathematical Society Lecture Note Series) Dynamical Vision: ICCV 2005 and ECCV 2006

Workshops, WDV 2005 and WDV 2006, Beijing, China, October 21, 2005, Graz, Austria, May 13, 2006, Revised Papers (Lecture Notes in Computer Science) Nonlinear Oscillations, Dynamical Systems, and Bifurcations of Vector Fields (Applied Mathematical Sciences) Introduction to the Analysis of Metric Spaces (Australian Mathematical Society Lecture Series) Trends in Distributed Systems: CORBA and Beyond: International Workshop TreDS '96 Aachen, Germany, October 1 - 2, 1996; Proceedings (Lecture Notes in Computer Science) Entropy Methods for the Boltzmann Equation: Lectures from a Special Semester at the Centre Ã‰mile Borel, Institut H. PoincarÃ©, Paris, 2001 (Lecture Notes in Mathematics) Cryptography and Lattices: International Conference, CaLC 2001, Providence, RI, USA, March 29-30, 2001. Revised Papers (Lecture Notes in Computer Science) Large-Scale Scientific Computing: 6th International Conference, LSSC 2007, Sozopol, Bulgaria, June 5-9, 2007, Revised Papers (Lecture Notes in Computer Science) Imagination Station Books 3-Pack: The Redcoats Are Coming! / Captured on the High Seas / Surprise at Yorktown (AIO Imagination Station Books) Imagination Station Special Pack: Books 1-6 (AIO Imagination Station Books) The Arithmetic of Dynamical Systems (Graduate Texts in Mathematics) Mobile Entity Localization and Tracking in GPS-less Environnments: Second International Workshop, MELT 2009, Orlando, FL, USA, September 30, 2009, Proceedings (Lecture Notes in Computer Science) Queen Anne's Lace Note Cards (Stationery) (Note Card Series) The Canadian Rockies (Banff Springs, english) Cellular Automata: 8th International Conference on Cellular Automata for Research and Industry, ACRI 2008, Yokohama, Japan, September 23-26, 2008, Proceedings (Lecture Notes in Computer Science) Music (Connections) (Connections! (Hardcover Twocan)) Femininity and Dance in Egypt: Embodiment and Meaning in al-Raqs al-Baladi: Cairo Papers Vol. 32, No. 3 (Cairo Papers in Social Science) Puritan Papers, Vol. 1 (Puritan Papers) The Time Garden Note Cards: Color-In Note Cards from the Creator of The Time Garden and The Time Chamber (Time Adult Coloring Books)