Complexity and Mathematics

Learning Resources

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Contents

Recommended books

Math & Stats

- ☐ *Nonlinear Dynamics And Chaos* by Steven Strogatz.
- ☐ Peter Guttorp, *Stochastic Modeling of Scientific Data*
- ☐ *Hidden Markov Models and Dynamical Systems*
- ☐ *Information theory, Inference, and Learning* (2003).
- ☐ K. Lindgren, *Information theory for complex systems*
- ☐ T. M. Cover and J. A. Thomas, *Elements of information theory*
- ☐ *Computational Bayesian statistics : an introduction*
- ☐ *Mathematical Theory of Bayesian Statistics*
- ☐ *Discrete Probability Models and Methods: Probability on Graphs and Trees, Markov Chains and Random Fields, Entropy and Coding*
- ☐ *A First Course in Probability and Markov Chains*

Complexity (General)

- ☐ John Miller and Scott Page, *Complex Adaptive Systems*
- ☐ Claudius Gros, *Complex and Adaptive Dynamical Systems
- ☐ *The Sciences of the Artificial*, Herbet Simon
- ☐ *Emergence* by Stephen Johnson. Published in 2002 by Scribner in New York
- ☐ *Spatial Simulation: Exploring Patterns and Processes* by David O'Sullivan and George Perry. Published in 2013 by Wiley in West Sussex, UK.

Networks

- ☐ *Networks: An Introduction*, M. E. J. Newman, Oxford University Press, Oxford (2010)
- ☐ Reuven Cohen and Shlomo Havlin, *Complex Networks: Structure, Robustness and Function*, Cambridge University Press, Cambridge (2010)
- ☐ S. N. Dorogovtsev, *Lectures on Complex Networks*, Oxford University Press, Oxford (2010).
- ☐ F. Harary, *Graph Theory*, Perseus, Cambridge, MA (1995)
- ☐ *Random Graph Dynamics*, by Rick Durrett
- ☐ *Dynamical Processes on Complex Networks*
- ☐ *Probabilistic foundations of statistical network analysis*

References