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MR1937490 (2003g:37156)**[Froyland, Gary \(D-PDRB\)](#)****Extracting dynamical behavior via Markov models. (English summary)***Nonlinear dynamics and statistics (Cambridge, 1998)*, 281–321, *Birkhäuser Boston, Boston, MA*, 2001.[37M25](#) ([37A50](#) [60J10](#) [62M05](#))

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This is a review article. The author describes a method of using a finite Markov chain approximation of a dynamical system to extract all kinds of information: invariant measures, decay of correlation, Lyapunov exponents and entropy, mean and variance of return times. The method can be applied, both to deterministic systems and to random maps (systems where one out of a set of maps is applied depending on a random event). The method is a generalization of Ulam's approximation of maps of an interval. Constructions and algorithms are described and illustrated, and rigorous results are given and referenced. The paper contains a number of interesting examples and valuable advice on how to use the described methods in practice.

{For the entire collection see [MR1936437 \(2003f:37002\)](#)}

Reviewed by [Paweł Góra](#)

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