

Preface

This short book consists of two parts. The first part is an exposition of basic measure theory and probability theory on continuous state spaces. It does not replace the many excellent texts on the subject but it gives a condensed and, I hope, still readable account suitable for graduate students in computer science with a background in concurrency and semantics and without the standard undergraduate analysis curriculum. I learned this subject when I began my research into labelled Markov processes and this part of the book represents what I found useful at that time.

It is based in part on lectures that I gave at Aarhus University in 1997 and at a summer school in Udine later that same year. I had intended to let them serve as stand alone lectures but after giving a version of these lectures at Oxford in 2003–04, I was persuaded to turn them – together with an account of recent research – into book form. In the end I felt it hopeless to keep pace with the vast outpouring of papers in the last few years and have described only the work with which I was directly involved. I have, in the last chapter, given some pointers to the work of others. I feel that a comprehensive account of the whole field of probabilistic verification and related topics such as approximation and connections to planning, machine learning and performance evaluation would be premature at this point. Perhaps in the future, some more ambitious person will attempt it when the field has stabilised more.

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Prakash Panangaden
Montreal West
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