
Preface

Since Felsenstein's groundbreaking 1981 paper (Felsenstein, 1981), molecular phylogenetics has closely tracked developments in statistics, more so than many other subdisciplines of biology. This trend has continued as statistics has become increasingly Bayesian, and the gap between phylogenetics and coalescent-based population genetics slowly disappears. Phylogenetics differs from typical statistical modeling efforts in its combination of discrete (tree topology) and continuous (substitution model) components. Because of its theoretical and computational challenges, phylogenetics is now proving to be an attractive area of research for a widening diversity of young Bayesian statisticians.

This project grew out of a successful collaboration between Paul Lewis, a biologist in the Department of Ecology and Evolutionary Biology long interested in model based phylogenetic methods, and Ming-Hui Chen and Lynn Kuo, professors in the Department of Statistics at the same institution (The University of Connecticut). This book provides a snapshot of current research in Bayesian phylogenetics, and was envisioned as a way of bringing state-of-the-art phylogenetics to the attention of the Bayesian statistical community, and state-of-the-art Bayesian statistics to the attention of the phylogenetics community, with the ultimate goal of encouraging further successful interdisciplinary research. The book is suitable for researchers at the graduate level or above in either statistics or biology. Topics addressed include model selection, sampling efficiency, priors, recombination, phylodynamics, evolutionary dependence, and divergence time estimation.

We would like to sincerely thank the authors for the uniformly high quality of their contributions, which made the job of editing straightforward. We thank them also for their patience as the book project evolved over time. Our hope is that this book will stimulate more successful collaborations between researchers in phylogenetics, population genetics and statistics.

Ming-Hui Chen
Lynn Kuo
Paul O. Lewis
Storrs, Connecticut