A Bayesian Model for Protein Secondary Structure Prediction

David B. Dahl*

Brigham Young University, Provo, Utah, United States dahl@stat.byu.edu

Qiwei Li Rice University, Houston, Texas, United States ql6@rice.edu

Marina Vannucci Rice University, Houston, Texas, United States marina@rice.edu

Hyun Joo University of the Pacific, Stockton, California, United States hjoo@pacific.edu

Jerry W. Tsai

University of the Pacific, Stockton, California, United States jtsai@pacific.edu

This paper proposes a Bayesian model for secondary structure prediction given the primary structure. The method considers the packing influence of residues on secondary structure determination, including those packed close in space but distant in sequence. This modeling allows insights into the rules governing packing, filling a substantial gap in the current understanding of protein structure.

Key Words: Protein tertiary structure, Residue packing structure