

The SU Math Department presents

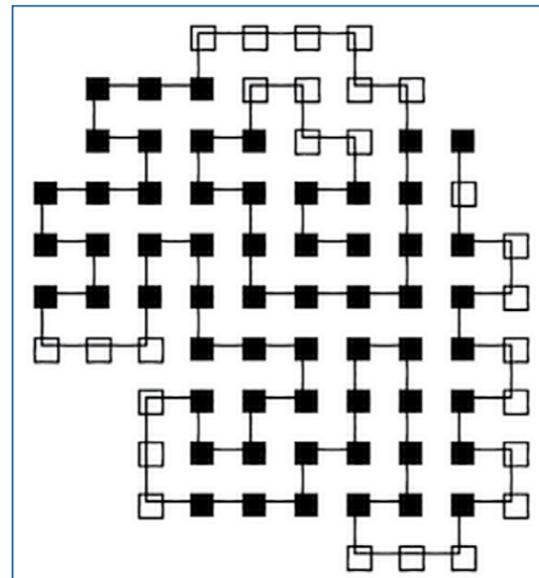
“Addressing the Protein Folding Problem with Multi-Objective Genetic Algorithms”

Thursday, October 2, 2014

3:30-4:45 PM

Dauphin Humanities Center 151

Proteins are one of the basic building blocks of life, and we have learned much about them since they were discovered more than 250 years ago including their shapes, functionality, and uses. However, there are still many basic questions that remain unanswered, including how proteins are able to transform from a useless linear assemblage of amino acids (primary structure) into a functional three-dimensional native structure. The ability to accurately predict the functional form of a protein from its primary sequence would revolutionize many fields.



The Protein Folding Problem is an interdisciplinary issue that touches on biochemistry, geometry, physics, mathematics, and computer science. To find a better method to predict the folded state of an active protein, we have adopted a de novo modeling approach employing an Artificial Intelligence algorithm. We are confident that our computational approach, which incorporates knowledge from the multiple disciplines above, will be instructive in achieving one of the few remaining ‘holy grails’ in the Life Sciences.



DR. JAMES COKER is an associate professor and the program director for the Bioinformatics and Biotechnology Regulatory Affairs Specializations within the Biotechnology Masters Program at the University of Maryland University College. He was previously an assistant professor in the Department of Biology at the University of Alabama at Birmingham where his laboratory studied the various adaptations organisms make to thrive in extreme conditions. Before that he worked at the Center of Marine Biotechnology studying the information transfer apparatus of the halophilic archaea. He earned his PhD from Pennsylvania State University.

DR. MICHAEL SCOTT BROWN is the program director and collegiate faculty at University of Maryland University College for the Software Engineering master’s degree in information technology. He was previously the founder and CEO of Valhalla Data Systems, Inc. He also has worked for NASA and Sun Microsystems. He holds a PhD in computer science from Nova Southeastern University as well as a master’s in computer science and a bachelor’s in mathematics and computer science from Shippensburg University.



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