Sarah Burton Miracle

Graduate Institution: Georgia Institute of Technology

Graduate Discipline: Algorithms, Combinatorics and Optimization

Hometown: Taipei, Taiwan

Relevant SC Research: Advanced Scientific Computing Research

Research Interest:

Randomized Algorithms and Markov Chains. Markov chains are algorithms that can allow us to obtain information efficient from exponentially large sets through random sampling. These algorithms are common across scientific disciplines, including statistical physics, biology, operations research, computer science and many others. My primary area of interest is designing and analyzing Markov chains by bringing insight and intuition from statistical physics, computer science, discrete mathematics and probability theory. Specifically I'm interested in applying rigorous Markov chain analysis techniques from computer science to the study of physical models such as colloids, and using insights from statistical physics such as phase transitions to inform our design and analysis of efficient sampling algorithms.

About Me:

In 2003, I graduated from Vanderbilt University with a BE in computer engineer and mathematics and a MS in Computer Science. I worked as an engineer and a manager at National Instruments in Austin, TX for five years before returning to academia. In the fall of 2008, I started work on my Ph.D. in Algorithms, Combinatorics and Optimization at the Georgia Institute of Technology. My advisor is Dr. Dana Randall.