



# Kyle Jordan Fox

**Graduate Institution:** University of Illinois at Urbana-Champaign

**Graduate Discipline:** Computer Science

**Hometown:** Marion, IL

**Relevant SC Research:** Advanced Scientific Computing Research

## Research Interest:

My interests lie in the design and mathematical analysis of algorithms. As we approach physical limitations on the speed of computers, more efficient algorithms are needed to keep up with increasing data sizes. My primary focus in this area is in computational topology, and in particular, topological graph theory. My main goal currently is to design an efficient algorithm for computing maximum flows in graphs embedded on surfaces of low complexity or genus. The knowledge gained from designing such an algorithm may help us with our understanding of surfaces as well as flow algorithms in more general graphs. I have also studied other problems related to minimum cuts in surface embedded graphs as well as the computation of shortest non-trivial cycles on surfaces.

My secondary interests include the design of scheduling algorithms and data structures. In particular, I have focused on scheduling tasks competing for limited resources so that the tasks do not wait long to be completed.

## About Me:

I am working toward a Ph.D. in Computer Science at the University of Illinois at Urbana-Champaign. I am advised by Professor Jeff Erickson and work in the theory and algorithms group. My primary research interests lie in the design and analysis of efficient algorithms in computational topology, but I have also worked in scheduling and data structure design. I have been heavily involved in the

recruitment and development of other graduate students through the Computer Science Graduate Student Academic Council and through reviewing applicants for the Computer Science Fellowship, Assistantship, and Admissions Committee. I have also interned for Google Inc., doing research in optimization and scheduling.

My ultimate career goal is to join a university as a tenure track faculty member. I hope to continue doing research, teach the knowledge I've gained in college, and advise graduate students of my own. I would also enjoy working for a research lab that gives me the freedom to continue working with the theory and algorithms community.

Outside of research, my main interests lie in music and dance. I am actively involved with my local swing dancing scene, the Illini Swing Society, where I rehearse for competitions, act as webmaster, and teach classes. I also enjoy keeping up with news on new technology, programming, and playing video games.



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