

Middlebury College
Computer Science Seminar

**Maximizing Happiness and Gender Balance
in First-Year Seminars**
and Other Unexpected Applications of Graph Algorithms

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How does Middlebury optimally assign new students to first-year seminars while balancing student preferences, enrollment limits, and gender balance? How can we segment an image into foreground and background regions with coherent colors and compact boundaries? How can we stitch multiple photographs into a panorama with minimally visible seams?

It turns out that all of these problems can be phrased as max-flow / min-cut network flow problems, which – unlike many other combinatorial puzzles such as the traveling salesperson problem – have efficient solutions. For instance, finding the optimal FYS assignment for a typical incoming class of 580 students takes less than one second. In this talk we will investigate how FYS assignment and other practical problems can be mapped to graphs, and how optimal solutions can be found via efficient algorithms.



Friday, February 27, 2009
12:30 p.m. to 1:20 p.m.
McCardell Bicentennial Hall 438
Lunch will be provided @ 12:15 PM

This event is sponsored by the Computer Science Department.