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Computer Science Department Distinguished Lecture Series

TOPIC: ***Small Grid Drawings of Planar Graphs with Balanced Bipartition***

SPEAKER: Takao Nishizeki, Professor and Dean
Graduate School of Information Sciences,
Tohoku University, Japan

ABSTRACT: In a grid drawing of a planar graph, every vertex is located at a grid point, and every edge is drawn as a straight-line segment without any edge-intersection. It has been known that every planar graph G of n vertices has a grid drawing on an (n-2)x(n-2) integer grid and such a drawing can be found in linear time. In this talk, we show that if a planar graph G has a balanced bipartition then G has a grid drawing with small grid area. More precisely, if a separation pair bipartitions G into two edge-disjoint subgraphs G_1 and G_2, then G has a grid drawing on a WxH grid such that both the width W and height H are smaller than the larger number of vertices in G_1 and in G_2. In particular, we show that every series-parallel graph G has a grid drawing on a (2n/3)x(2n/3) grid and such a drawing can be found in linear time.

DATE: ***Monday, December 21, 2009***

TIME: ***2:00 p.m. – 3:00 p.m.***

PLACE: ***Engineering and Computer Science Building (ECS), Room# 660***

SPONSOR: ***Sue Whitesides, Professor and Chair***
and Michael Miller, Professor
Department of Computer Science