UW-MSR Course on Vision Algorithms

CSE 557/590CV, Spring 2004

Instructor: Steve Seitz

co-organizers from MSR (Rick Szeliski, P. Anandan, Nebojsa Jojic)

Modern work in computer vision uses a toolbox of sophisticated numerical and statistical algorithms. Some of these algorithms have been pioneered by computer vision researchers, while others were developed in other fields such as machine learning, statistics, physics, and applied mathematics. The purpose of this course is to cover the basics of several of these algorithms, including properties, data structures, and insights into using these techniques in practice. Eight invited speakers will give tutorials on these algorithms and we will explore their applications in computer vision. The speakers are all acknowledged experts, so it's a unique opportunity to learn this material from "the horse's mouth", from people who have a great deal of experience with, and in many cases helped develop, these algorithms. Each speaker will give two talks--a tutorial at UW, and a research talk at Microsoft. Programming assignments will be to implement a small number of these algorithms and to try them out on interesting problem domains.

The class will meet three times a week.
Talks at **UW** (CSE 577) will be Tuesdays and Fridays 1:30-2:50 in AC 305**, talks will be video-taped and posted online.**
Talks at **Microsoft** (CSE 590CV) will be Monday (with two exceptions) 10:30-noon in building 113/1021. Van leaves promptly at 9:45am from the parking lot at the north end of the HUB.

Date	Where	Speaker	Topic
Mar 30	UW	lecture (Seitz)	Intro
Mar 31 (Wed)	MSR	Yair Weiss (Hebrew U.)	Learning to Perceive from Image Statistics--A Challenge
Apr 2	UW	Yair Weiss (Hebrew U.)	Tutorial: Approximate inference in graphical belief propagation
Apr 6	UW	lecture (Seitz)	more on "
Apr 9	UW	Nebojsa Jojic (Microsoft)	Tutorial: Variational Inference and Expectatic
Apr 12	MSR	Nebojsa Jojic (Microsoft)	TBA
Apr 13	UW	Nebojsa Jojic (Microsoft)	more on variational inference
Apr 16	UW	Ramin Zabih (Cornell)	Tutorial: Graph Cuts (TBA)
Apr 19	MSR	Ramin Zabih (Cornell)	Some New Directions in Energy Minimizatior
Apr 20	UW	lecture (Seitz)	more on graph cuts
Apr 23	UW	lecture (Seitz)	TBA

Apr 26	MSR	Guillermo Sapiro (Minnesota)	Working with implicit surfaces and point clou
Apr 27	UW	Guillermo Sapiro (Minnesota)	Tutorial: Level Sets (TBA)
Apr 30	UW	Rick Szeliski (Microsoft)	Tutorial: Nonlinear Least Squares, Sparse Ma (TBA)
May 3	MSR	Rick Szeliski (Microsoft)	TBA
May 4	UW	Paul Viola (Microsoft)	Tutorial: Discriminative Methods (TBA)
May 7	UW	lecture (Seitz)	
May 10	MSR	Paul Viola (Microsoft)	TBA
May 11	UW	lecture (TBA)	
May 14	UW	lecture (TBA)	
May 17	MSR	Sam Roweis (Toronto)	TBA
May 18	UW	Sam Roweis (Toronto)	Tutorial: Dimensionality Reduction (TBA)
May 21	UW	Dan Huttenlocher (Cornell)	Tutorial: Matching and Distance Transforms
May 24	MSR	Dan Huttenlocher (Cornell)	TBA
May 25	UW	lecture (Seitz)	
May 27 (Thurs)	MSR	Frank Dellaert (GAtech)	TBA
May 28	UW	Frank Dellaert (GAtech)	TBA: Random Sampling and Monte Carlo M (TBA)
June 1	UW	lecture (Seitz)	
June 4	UW	lecture (Seitz)	