

# CSC 2228 Topics in Mobile and Pervasive Computing

Fall 2006

[www.cs.toronto.edu/~delara/courses/csc2228](http://www.cs.toronto.edu/~delara/courses/csc2228)

Wednesday 4:00-6:00 PM

BA2179

## Instructor

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## Requirements

### Research paper presentation

The research paper presentations will give you the experience of reading, synthesizing, and presenting other people's research. You will present at least one research publication over the semester. However, depending on the size of the class you may be asked to present more than once. Your presentation should last at most 30 minutes, after which you will be in charge a leading a 20 minutes open discussion. You should prepare in advance a short list of issues or questions that you would like to address over the discussion period. **I will be very strict regarding timing and will interrupt you after the 30 minutes mark.**

### Research paper summaries

The intent of the research summaries is to familiarize you with the process of reviewing manuscripts. For those papers that you are not presenting yourself (including the ones presented by the instructor), you will assume the role of conference reviewer, and write a 3 paragraph critical review of the paper. Briefly summarize the paper in the first paragraph. In the second and third paragraphs, provide at least one argument for accepting and rejecting the paper, respectively.

### Research project

The purpose of the project is to gain experience doing original systems research, synthesizing you results in written form, and presenting them in public. You are required to develop a group project (groups can include up to 3 people) in an area related to mobile or pervasive computing. The results of this project should be reported in a 5 page long manuscript following conference style guidelines (single space, double column, 8.5 X 11 inch paper, 10pt font). The project will also be presented to the class in a workshop-like session at the end of the semester.

<b>Milestones</b>	<b>Date</b>
Form groups (email)	Sep. 27
Proposal (1 page) and Web page	Oct. 4
1st progress report (1 page)	Nov 1
2nd progress report (1 page)	Nov 22
Class presentation (20+5 minutes)	Dec 6
Final report (5 pages in proceedings format)	Dec 15

## Grade Breakdown

Paper presentation 20%  
Paper summaries 20%  
Project report and presentation 50%  
Class participation 10%

# CSC 2228 Topics Mobile and Pervasive Computing

## Course Syllabus

Date	Topic	Papers
Sep 13	Introduction	
Sep 20	Ubicomp Vision	<ul style="list-style-type: none"> <li>• Satyanarayanan, M., "Pervasive Computing: Vision and Challenges," IEEE Personal Communications, August 2001.</li> <li>• T. Kindberg and A. Fox, "System Software for Ubiquitous Computing," IEEE Pervasive Computing, Vol 1, Num 1, January 2002, pp 26-35.</li> </ul>
Sep 27	Access to Personal Computing Environment	<ul style="list-style-type: none"> <li>• Ricardo A. Baratto, Leonard N. Kim, Jason Nieh , "THINC: a virtual display architecture for thin-client computing," SOSP 2005.</li> <li>• Ramon Caceres, Casey Carter, Chandra Narayanaswami, Mandayam Raghunath, "Reincarnating PCs with portable SoulPads," MobiSys 2005.</li> </ul>
Oct 4	Mobile Data Distribution	<ul style="list-style-type: none"> <li>• Mehul Motani, Vikram Srinivasan, Pavan S. Nuggehalli, "PeopleNet: engineering a wireless virtual social network," MobiCom 2005.</li> <li>• Julian Chesterfield, Pablo Rodriguez, "DeltaCast: efficient file reconciliation in wireless broadcast systems," MobiSys 2005.</li> </ul>
Oct 11	Localization	<ul style="list-style-type: none"> <li>• Yiming Ji, Saa Biaz, Santosh Pandey, Prathima Agrawal, "ARIADNE: a dynamic indoor signal map construction and localization system," MobiSys 2006.</li> <li>• Yu-Chung Cheng, Yatin Chawathe, Anthony LaMarca, John Krumm, "Accuracy characterization for metropolitan-scale Wi-Fi localization," MobiSys 2005.</li> </ul>
Oct 18	Device Pairing	<ul style="list-style-type: none"> <li>• Claude Castelluccia, Pars Mutaf, "Shake them up!: a movement-based pairing protocol for CPU-constrained devices," MobiSys 2005</li> <li>• Anthony J. Nicholson, Ian E. Smith, Jeff Hughes, and Brian D. Noble, "LoKey: Leveraging the SMS Network in Decentralized, End-to-End Trust Establishment," Pervasive 2006.</li> </ul>
Oct 25	Security	<ul style="list-style-type: none"> <li>• Paramvir Bahl, Ranveer Chandra, Jitendra Padhye, Lenin Ravindranath, Manpreet Singh, Alec Wolman, Brian Zill, "Enhancing the security of corporate Wi-Fi networks using DAIR," MobiSys 2006.</li> <li>• Yaniv Shaked, Avishai Wool, "Cracking the Bluetooth PIN," MobiSys 2005.</li> </ul>
Nov 1	Power	<ul style="list-style-type: none"> <li>• Jacob Sorber, Nilanjan Banerjee, Mark D. Corner, Sami Rollins, "Turducken: hierarchical power management for mobile devices," MobiSys 2005.</li> <li>• Lin Zhong, Niraj K. Jha, "Energy efficiency of handheld computer interfaces: limits, characterization and practice," MobiSys 2005.</li> </ul>
Nov 8	Mesh Networks	<ul style="list-style-type: none"> <li>• John Bicket, Daniel Aguayo, Sanjit Biswas, Robert Morris, "Architecture and evaluation of an unplanned 802.11b mesh network," MobiCom 2005.</li> <li>• Yair Amir, Claudiu Danilov, Michael Hilsdale, Raluca Musaloiu-Elefteri, Nilo Rivera, "Fast handoff for seamless wireless mesh networks," MobiSys 2006</li> </ul>
Nov 15	Multiple Wireless Interfaces	<ul style="list-style-type: none"> <li>• Trevor Pering, Yuvraj Agarwal, Rajesh Gupta, Roy Want, "CoolSpots: reducing the power consumption of wireless mobile devices with multiple radio interfaces," MobiSys 2006</li> <li>• Allen Miu, Hari Balakrishnan, and Can Emre Koksal, "Improving Loss Resilience with Multi-Radio Diversity in Wireless Networks," MobiCom 2005.</li> </ul>
Nov 22	Evaluating Mobile Networks	<ul style="list-style-type: none"> <li>• Jungkeun Yoon, Brian D. Noble, Mingyan Liu, Minkyong Kim, "Building realistic mobility models from coarse-grained traces," MobiSys 2006.</li> <li>• Pradipta De, Ashish Raniwala, Rupa Krishnan, Krishna Tatavarthi, Jatan Modi, Nadeem Ahmed Syed, Srikant Sharma, Tzi-cker Chiueh, "MiNT-m: an autonomous mobile wireless experimentation platform," MobiSys 2006</li> </ul>
Nov 29	Sensor Networks	<ul style="list-style-type: none"> <li>• Carl Hartung, Richard Han, Carl Seielstad, Saxon Holbrook, "FireWxNet: a multi-tiered portable wireless system for monitoring weather conditions in wildland fire environments," MobiSys 2006.</li> <li>• Hongzhou Liu, Tom Roeder, Kevin Walsh, Rimon Barr, Emin Gun Sirer, "Design and implementation of a single system image operating system for ad hoc networks," MobiSys 2005.</li> </ul>
Dec 6	Project presentations	