Contact Information

Prof. Holly Yanco
Office: Olsen 206
E-mail: holly@cs.uml.edu (best contact method)
Phone: 978-934-3642
Office hours: Tuesdays 12:00-1:30pm and 4:30-5:30pm
and by appointment

Eric McCann
Lab: Olsen 304
E-mail: emccann@cs.uml.edu
Office hours: Thursdays 3:00-4:00pm and by appointment

Class Meetings

Tuesdays, 2:00 – 4:30, Olsen 402

Course Description

While the mouse and keyboard are well-established methods for interacting with computers, they introduce a layer of abstraction between the user and the screen. Pen-based computing removed this layer of abstraction, but stopped short of allowing people to interact more naturally with multi-point gestures. Although multi-touch systems were first developed several decades ago, it is only the past few years that have seen commercial success for these systems, ranging from the iPhone to Perceptive Pixel's system used in CNN's 2008 election coverage. The course will explore current research in multi-touch computing as well as historical work that led to today's systems. Students will develop applications for the Microsoft Surface.

The course will draw upon research papers (both recent and historical) for learning about these topics. Each week, you will read 3-5 papers each week on a particular topic. These papers will form the basis for class discussion of the topic.

Readings

There is no textbook for the course. Readings will be distributed in hard copy the week before they will be discussed in class. They will also be posted to the course website if an electronic version exists.

There is a library of Surface programming books available in Olsen 304. See the attached book list for more information on books that you may wish to also purchase as references for the course.
Course Website

http://www.cs.uml.edu/~holly/teaching/91550/spring2012/

Course Requirements

Written Discussions of the Readings
Each week, you should turn in a written discussion of each of the papers for that week (about one page per research paper). In this discussion, you should briefly summarize the paper (no more than two or three sentences), then discuss the pros and cons of the research discussed in the paper. (Things like the font are not acceptable pros or cons – you need to discuss the ideas in the paper, not their presentation.) You should also list at least three issues that you would like to discuss about the paper; these issues could be in the form of questions, if you’d prefer. These summaries must be original work and should include proper citations if you take any material from other sources.

Assignments/Labs:
There will be assignments and labs distributed throughout the semester.

Project:
The second half of the term will be spent developing a project for the Microsoft Surface. You’ll choose the topic in consultation with me (either before or after class on February 21st, via e-mail, or by setting an appointment). You will present your project idea in class on February 28th. Project proposals will be due on March 6th. There will be a mid-project check on April 10th. On the last day of class (May 1st), you’ll give a 15-20 minute presentation on your project work and will turn in your project report. More on the project will be discussed in class in mid-February.

Grading Policy

Written discussions 35%
Class discussion 10%
Assignments and labs 15%
Project 40%

Collaboration Policy

You should write your paper discussions, assignments, labs and project on your own, unless you have been approved to work in a group on your project. You can discuss assignments with your classmates, but any work that you turn in must be your own.

Homework Policy

All work must be turned in during class on the due date in order to receive credit.
<table>
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<th>Date</th>
<th>Topic</th>
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| T 1/24 | Course overview  
Using Microsoft Surface and 3M Touch Systems |
| T 1/31 | Usability and feedback  
Intro to C# and WPF  
Lab 1 Due; Start Lab 2 (Surface programming examples) |
| T 2/7  | Multi-touch technologies  
Lab 2 Due; Start Lab 3 (Creating your own Surface application or modifying existing examples) |
| T 2/14 | Ergonomics |
| T 2/21 | Designing gesture sets  
Lab 3 Due; student presentations of applications from lab 3  
Outside class: project idea discussion |
| T 2/28 | Designing GUIs for multi-touch  
Student presentations of project ideas |
| T 3/6  | Guest lecture: Dr. Mark Micire, NASA  
Redesigning NASA’s multi-touch interface  
Project proposals due |
| T 3/13 | No class: Spring Break |
| T 3/20 | Guest lecture: Dr. Jill Drury, MITRE  
Group interaction and evaluating multi-touch interaction  
Project proposals returned |
| T 3/27 | Different form factors for multi-touch |
| T 4/3  | Multi-touch for disaster response and robot control |
| T 4/10 | Pen/tablet computing and its relation to multi-touch  
Mid-project check: student presentations about state of projects and written report due |
| T 4/17 | Multi-touch for computer gaming, data visualization and education |
| T 4/24 | Cool applications: each student spends ten minutes describing a multi-touch application that they’ve researched |
| T 5/1  | Final project presentations  
Final project report due |