CSE 40416
System Interface Design
Prof. Aaron Striegel
Department of Computer Science & Engineering
University of Notre Dame

Lecture 1 – August 26, 2009

Today’s Lecture
☐ Introduction
☐ Website / Lab
☐ Teasers
☐ Discussion
☐ Syllabus
☐ Q&A

Meet Dr. Striegel

☐ Associate Professor
  ■ Comp Sci & Engr. (CSE)
☐ Teaching
  ■ Networking
  ■ System Interface Design
☐ Research
  ■ Computer networks
  ■ Computer security
  ■ System management
  ■ Stroke rehabilitation

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http://www.cse.nd.edu/~striegel
Finding My Office

Office Hours
M 11, T 10-12, stop on by

Office Hours

- Scheduled Hours
  - Monday: 11
  - Tuesday: 10-12
- E-mail / call for appt
- Stop in
  - Any time
  - Check Google Calendar
  - Link on my web page

More Introductions

- Dirk VanBruggen
  - dvanbruge@nd.edu
  - 214 Cushing Hall

Course Website
http://netscale.cse.nd.edu/SysIF09
Wiki

☐ Course will be on the NetScale Wiki
  ☐ Should have seen password e-mail
  ☐ Logon is FirstnameLastName
     ☐ Notre Dame information
  ☐ Separate password from ND AFS
☐ Everything will be on the Wiki
  ☐ Assignments
  ☐ Submissions
  ☐ Software downloads
  ☐ Software APIs
     ☐ Surface, Natal (?)

Assignments

☐ Welcome back 😊
  ☐ Wiki editing
     ☐ Roughly 5-10 minutes
     ☐ Walk through the basics
  ☐ Weekly blog
     ☐ Create your blog
     ☐ Create inaugural entry

Course Overview

This course will focus on the interface to computing systems, in particular with respect to multi-sensory input/output through direct experience in laboratory and project activities. Specific interfaces to be covered include traditional graphical user interface (GUI) design, visualization via specialized controls (network graphs, virtual worlds), multimedia (audio, video), and sensory input/output (motion capture, multi-touch, etc.). Further topics include exploration of the effects of scaling/networking on responsiveness, exposure to multiple design choices (web, framework, native), and exposure to multiple contemporary programming languages.
Course Overview (Simplified)

- Nintendo Wiimote
- Microsoft Surface
- C# WPF
- Xbox 360 XNA

Teasers

Minority Report

Small Group Exercise

- Do you have any particular favorite movie interfaces?

Split into groups of 2-4 students and come up with any favorite GUIs that come to mind.
Teasers - Continued

Vectorform - Surface DJ Demo 2

— http://www.youtube.com/watch?v=mNb9MSn2ZB4

Teasers - Continued

Touchable Holography

Wiiimotes

A holographic image floating in mid-air is no longer a mere dream.

— http://www.youtube.com/watch?v=Y-P1zZAcPuW

Teasers - Continued

Diablo 3 Gameplay Video Part 1 "High Quality"

— http://www.youtube.com/watch?v=NQMBIRipp5A
Course Syllabus

- Lecture – MWF (here)
  - May occasionally have lab sections on Fridays
  - Lecture notes should (I hope) be posted in advance or handed out in class

- Textbooks
  - All optional
    - Order via Amazon or elsewhere
  - Alternatively
    - Use Google
    - Use the books in the lab

System Interface Lab

- Fitzpatrick 355S
  - Access via passcode
  - 3x HP Multi-Touch (Windows Vista)
    - Visual Studio, Microsoft Surface SDK, XNA Game Studio
  - 1x Nintendo Wii
    - 4x Wiimotes w/charger, 1x Balance Board
  - 2x Microsoft Surface
    - 1 unit – Commercial -> Main Office
    - 1 unit – Developer -> Stay in lab

Lecture - Friday

- Brief tour of the lab
  - Split into 3 groups
  - Choose a time on the signup sheet

- Get the following
  - Pass code for lab
  - Logon for Multi-Touch
  - Logon for Surface
  - Walkthrough – Visual Studio
  - Walkthrough – WiiMote pairing
Pre-requisites / Lecture Style

☐ Programming
  ■ C/C++ programming
  ■ Data structures
  ■ Willingness to learn

☐ Lecture style
  ■ Lots of early ground to cover
  ■ Some C# -> largely on your own to learn
    □ Very similar to Java, C++
    □ Will have a few lectures
  ■ Most content will focus on new material
    □ HCI, Wiimote, WPF, Surface, XNA

Ask questions early on. We will be moving very briskly.

Course Objectives

☐ Interface guidelines
  ■ Understand / work with

☐ Multi-modal programs
  ■ Blend touch, sound, video, etc.

☐ C# / WPF experience
  ■ Competent at programming

☐ Analyze interfaces
  ■ What is good, what is bad

☐ Group projects

☐ Design documents

Grading

☐ Normal components
  ■ See syllabus

☐ Electronic portfolio
  ■ "Best hits" of your projects
  ■ Show off your work

☐ Final project
  ■ Expand particular project
  ■ Choose a new topic
  ■ Must use the Surface
  ■ Judged by a group from Microsoft
Commentary - Homework

- Vary in terms of size of group
  - Early on – individual
  - Trend from 1 -> 2 -> up to 4
- ND Honor Policy
  - What does it mean to work in a team?
  - Properly credit sources
  - Wiki submission

Further Comments - Syllabus

- Note taking
  - It is a good thing. If I write it down, perhaps you should too.
- Check your e-mail
  - Course mailing list
- Ask questions
  - If you are lost, say so
- Be pro-active
  - Road-runner ethic

References

- Draw heavily from other curriculum

MIT 6.831 User Interface Design and Implementation

ACM SIGCHI Curricula for Human-Computer Interaction
  http://sigchi.org/cdg/cdg2.html
Avoid the Hall of Shame!

http://homepage.mac.com/bradster/architect/controls.htm

Questions?

- Sign the sheet – lab time (Friday)
- Wiki Editing
- Blog Creation