Final Projects Ideas and Guidelines

Lecture #2: A Word on Final Projects
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Fall 2013

Project Goals

- Apply knowledge from class lectures and discussions
- Developing a significant piece of software
- Begin master’s thesis or PhD dissertation research
- Publish papers
Project Guidelines

- 5-6 weeks to do the project
  - scope should fall within timeframe
  - milestones should sync up with project status report days
- Should have some form of evaluation
- Solid code design for reuse
- Research component

Project Proposal

- Must get proposal approved by professor
- Proposal should include
  - introduction to problem
  - related work
  - what you are going to do
  - what are the novel components
  - how you are going to do it (i.e., strategy)
  - measure of success
Project Ideas – Pen-based Shader

Project Ideas – Mathematica 9

Sketching Interface to Mathematica
Project Ideas – IPhone/IPad

- Create a cool touch-based app for the IPhone or IPad

Project Ideas – Circuit Tool

- Sketch out circuit diagrams

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Project Ideas – Interactive eBooks

Drawing Recognition

How Do Humans Sketch Objects?
ACM Transactions on Graphics (Proc. SIGGRAPH 2012)
Mathias Eitz, James Hays and Marc Alexa

Can we do better?
AR Sketching

- Sketch objects then construct 3D representations in AR (Physics education)


Project Ideas – Paper Projects

- Implement a paper and make improvements
  - Sketch
  - Teddy
  - Ladder
  - etc…
Human Robot Interaction (1)

- Sketch-based (touch, pen) UI to control robots
  - direct teleoperation
  - guided operation

Kinova’s JACO  Bioloid’s DARwin-OP

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Human Robot Interaction (2)

Microsoft Robotics Studio
http://www.microsoft.com/robotics/

Gazebo (ROS) – http://gazebosim.org/

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Human Robot Interaction (3)

- Inspiration from Igarashi’s Work