Minutes: August 8, 2012

* Irina’s paper: Development of a Laboratory Kit for Robotics Engineering Education
  + Robotics program at the Worcesters Polytechnic Institute
  + Robotics to introduce undergraduates to computer science – hoping to convince them to undertake graduate research projects in robotics
  + Purposes
    - Introduce fundamentals of different engineering disciplines
    - Apply skills in real life
    - Using imagination and innovation to improve society
  + 3 course levels
  + Robotics approach was good, not because of the immediate feedback provided by the robots, but the multiple disciplines involved with it.
  + Most students loved the courses
* Assessment for USC cs101 CLASSES – 3 sections
  + Combine methods from research papers reviewed by the group
  + Surveys, individual interviews, tests
  + Must be able to obtain statistically significant data
  + Use surveys across all sections
  + Use interview responses as anecdotal fodder for publications/papers/etc.
  + Cannot compare exams scores if questions do not match (eg: question specifically pertaining to Scribbler)
  + Instead, compare answers to specific questions instead of overall exam scores
  + Questions should be phrased in such a way that students from all sections (robot AND non-robot) can answer it
    - Eg: one concept is taught across all sections using the same guidelines – will students from the robot sections answer questions on that concept more accurately?
  + The tests need to be the same length (to eliminate the factor of time allotted per question), but a designated number of questions need to be the same across all section tests (say 10 out of 15, for example)
* Blue pleo vs. pink pleo
  + Blue is relaxing for people who are nearsighted
  + Red/pink is a more exciting color
* Potential Scribbler projects
  + Group alphabet project: each group assigned a letter (or two letters if they are easy to draw). Letters to be designed in the same fashion (x-y coordinate system) – combine code for all letters in the end to create an alphabet for everyone to use
  + Starter project: having each group have the robot draw a team logo?
* Teaching pointers
  + Best taught in a visual manner
  + Idea:
    - Labeling the box ‘pointer’, labeling the robot ‘variable’
    - Typing \* makes the robot move out of the box (returns the variable)
    - Typing & makes the robot move back into the box (gives pointer)
* Practical concerns
  + How to get everyone to run C++?
  + How do we evaluate assignments? What data are we looking to collect?
    - Ask students to log how much time they spend on the project
    - Not all variables can be accounted for – not all should be considered. Which ones are the most important to collect data on?
    - Maybe don’t tell the students to log times – code the robots to run a timer each time they turn on and save it in an accumulating log
    - Eg: draw two concentric hearts, and have the students code the robot to draw a heart in between them (so there will be three concentric hearts) – assign grades based on how well they did that
* Need a YouTube channel for the class!
* Places to draw data from
  + Surveys (2: pre-course and post-course)
  + In-class activities [labs] (2 2-hr sessions per week)
  + Homework
  + TA Office hours
  + Us (research group)
  + Professor office hours
  + HW projects
  + Tests (2 – midterm and final)
  + 3 hour lab to be required – looking for a studio classroom – meet 3:00 – 5:50 on Fridays
    - Group(s) to present on what they’ve worked on during the week (student team presentations)
      * Find out what they liked / what they learned
      * Forces students to form study groups and work together
      * How-to presentations / handout worksheets
        + Have students fill in worksheet – force them to pay attention
        + Maybe require that the presentations cannot have words – serve only as a visual aid, forcing the students to actually present their material
* Demo (as a final project?)
* What to have by the end of summer
  + Toolkit (C++)
  + Demos for the first day of class – showcase capabilities of robots
  + Tutorials – video and written
  + Documentation for code – using Doxygen?
* Website options
  + How/where to post everything listed above? Wiki? Wordpress? YouTube? USC course website? Combinations and connections?
    - Usable, friendly, easy to find
* Progress
  + Scribbler team:
    - toolkit prepared and functional – only need to add more demo functions
    - Ideally: change image for VMWare to bypass current configuration process
  + Pleo team:
    - Sensor worksheet completed
    - Achieved a way to get real-time feed of sensors
    - Having trouble with Qt – Witty is also a struggle. Ideally, Witty to replace Qt