

# **Electrical/Computer Engineering Design Project Proposal**

**Title:** *PLAY 2011. Programming Languages and Youngsters*

**Client:** *T. S. Norvell and M. P. Bruce-Lockhart*

**Supervisor:** *T. S. Norvell*

## **Description**

*PLAY is ...*

- *a graphical, object-oriented programming language.*
- *an integrated development environment including at least*
  - *a graphical editor for objects, classes, and methods;*
  - *a code checker;*
  - *an animating interpreter; and*
  - *a set of state visualizations including a 'stage' where objects can meet and interact.*
- *a set of predefined worlds defining interesting classes and objects. A world might be a computer game that can be modified or a simulation of some physical system.*
- *a web based application, so that worlds can be stored online and easily shared with online friends.*
- *intended for kids of all ages.*

## **Roles**

*I think a team of 3 or 4 developers should do it. In addition to the supervisor, Theodore Norvell, we need roughly a*

*0. Visualization visionary and graphical guru.*

*1. Model master and language lama.*

*2. Web weaver and server-side Siddhartha.*

*Every member will be responsible for testing and quality control, both of their own work, and of the work of others.*

*The story so far: Together with Michael Bruce-Lockhart, I have developed—or begun to develop—a generic system JHigraph. Higraphs are a combination of trees and graphs. You can think of a higraph as a set of trees, together with a set of edges between the tree nodes. We can use higraphs as modes of the PLAY program and the objects that are its data. JHigraph also provides facilities for the display, animation, and graphical manipulation of higraphs. During winter 2010, Cong Chen, a graduate student, began implementing the PLAY language on top of the JHigraph framework. Therefore part of the project will involve extending the implementation of PLAY atop JHigraph and part will involve improving JHigraph to better support PLAY and other applications, while not messing up existing applications that depend on JHigraph—so far, the Teaching Machine.*