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Alice via Interactive Game Programming

ABSTRACT

We recommend teaching Alice [2] as a way to introduce students at all levels to computer programming. In addition, we suggest that the way it is taught matters. To this end, we describe and demonstrate the approach of a newly published workbook that uses a highly motivating story-telling 3D virtual world interactive game design and development approach that makes learning programming fun.

Most Alice textbooks follow a serial pedagogical approach: methods, variables and functions, flow control, lists and arrays, events, and recursion [1]. The Fluency with Alice workbook [3] has the student play the role of movie director and begins with and follows a story line. Alice features and object-oriented principles are taught as needed to move the story forward. The driving force is the story rather than Alice features. This makes algorithm design and implementation naturally engaging and even exciting!

The workbook’s pedagogical approach is “tell-show-do” and is unique in that it contains over 50 Flash animations (i.e., “show”) embedded in the text itself. Fluency with Alice optionally takes the place of four JavaScript chapters in a widely adopted information technology text book [4]. The workbook can stand alone at all educational levels.

We discuss the workbook’s pedagogical philosophy and demonstrate using Alice proximity functions together with While control statements to teach students to program object interactions in a quest game. We show how recursive programming is easily taught right alongside of iteration as an equally viable way to implement a game programming algorithm for object interaction and animation.

References


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