

UCSD StudentTECH 2012

Advanced Technology for Middle and High School Students
Sponsored by the San Diego Supercomputer Center, University of California,
San Diego

Alice – Beginning Computer Programming in a 3D Environment!

Monday- Friday, June 25-29, 2012

Class meets at the University of California, San Diego from 8:30am - 3:00pm.

Alice™ – Educational software that introduces computer programming in an engaging, intuitive and motivating 3D animation environment.

Course Overview

Alice is a 3D programming environment that makes it easy to create animation for storytelling, playing an interactive game, or sharing a video on the web. Alice is designed to be a teaching tool for introductory computing. It uses 3D graphics and a drag-and-drop interface to facilitate a more engaging, less frustrating first programming experience. Created for middle school, high school and college students, this software program offers a first glimpse into the world of computer programming. Come join the fun!

Alice allows students to learn fundamental programming concepts in the context of creating animated movies and simple video games. In Alice, 3-D objects (e.g., people, animals, and vehicles) populate a virtual world and students create a program to animate the objects.

In Alice's interactive interface, students drag and drop graphic tiles to create a program, where the instructions correspond to standard statements in a production oriented programming language, such as Java, C++, and C#. Alice allows students to immediately see how their animation programs run, enabling them to easily understand the relationship between the programming statements and the behavior of objects in their animation. By manipulating the objects in their virtual world, students gain experience with all the programming constructs typically taught in an introductory programming course.

Topics will include learning about program design, object-oriented and event-driven programming, stepwise refinement, sequence, selection, iteration, using functions, and most importantly, problem solving skills critical to become a successful computer programmer.

Alice was created by Carnegie Mellon University to create an environment where a student's first exposure to computer programming is successful.

For more information on this exciting software, please visit <http://alice.org/>.

Course Goals and Learning Objectives

San Diego Supercomputer Center Summer Workshop 2012

The goal of this course is to provide a strong and creative foundation in computer science. This is a hands-on class with object programming and problem solving at its core. The course will take the students through design, develop and implementation of several 3D animation computer programs.

The class is geared to advanced junior high and high school student. It is useful if a student has a basic understanding of Windows and using a computer.

How the Class Will Be Taught

This course is taught using classroom and lab instruction employing lecture and demonstration, in-class exercises, student participation, and class activities leading to a final project. Classes will include introductory concept presentations, followed by in-class exercises. Throughout, there will also be handouts and brief presentations on relevant concepts.

Reading

The course will be primarily based on a variety of free handouts and online readings, but the following is recommended if your student wishes to continue learning about Alice after this course:

Dann, Wanda P., Cooper, Stephen, Pausch, Randy, Learning to Program with Alice Second Edition, Pearson Prentice Hall, isbn 978-0-13-208519-9

Topics to be Covered During This Workshop

Module 1: Introduction to Alice

- Getting Started with Alice
- Program Design and Implementation
- Programming: Putting Together the Pieces

Module 2: Object-Oriented and Event-Driven Programming Concepts

- Classes, Objects, Methods and Parameters
- Interactive: Events and Event Handling

Module 3: Using Functions and Control Statements

- Functions
- If/Else
- Repetition

Module 4: Final Presentation

- Student Projects

Instructor: Jeff Sale, San Diego Supercomputer Center, UCSD

Prerequisites:

- Must be a current middle school student in grade 6-10.
- A basic understanding of computers.

Course fee: \$225.00

If you have any questions regarding this workshop or the application process, please contact Ange Mason via phone at 858 534-5064 or via email at amason@ucsd.edu.

Alice™ - Beginning Programming in a 3D Environment

June 25-29, 2012

Applicant Information:

Name: _____
Last First Middle

Mailing address: _____
Street Address or Post Office Box City/State Zip

Telephone: _____ Email: _____

Date of birth: _____ Age as of June 30, 2012: _____

Gender: _____ Male _____ Female

San Diego County Middle or High School: _____
School name District

Grade completed by June 2012: _____

Email: (optional) _____

Parent or Legal Guardian Information (if applicant is under 18): (Please Print)

Name: _____

Mailing address: _____
Street Address or Post Office Box City/State Zip

Telephone: (Home) _____ (Work) _____

Email: (Please Print) _____

Course fee: \$225.00

Please make your check or money order payable to UC Regents and submit both payment and application in a single envelope to the following address:

Ange Mason
Attn: Student Summer Workshops
San Diego Supercomputer Center
University of California, San Diego
9500 Gilman Drive, Mail Code 0505
La Jolla, CA 92093-0505

If you have any questions regarding this workshop or the application process, please contact Ange Mason via phone at 858 534-5064 or email at amason@ucsd.edu.