Learn Programming and 3D Animated in the Star Wars World of ALICE

Monday- Friday, July 6 – 10, 2020

Class meets on the campus of UC San Diego from 8:30 am - 3:00 pm

Course Overview:

How to create a 3D animated virtual reality video using ALICE 3.0 object-oriented software, experience virtual reality in the ALICE world, code in block or Java side-by-side view, run and evaluate your programs, export video files of your 3D animations to share with family and friends.

You can even record your animations and share them with your family and friends. Prior coding experience recommended but not necessary to enroll in this course.

In this course students will program their custom made avatars to travel through the universe in action packed adventures while learning to code. Using the 3D object-oriented software called ALICE, this course begins by showing student projects including spacecrafts flying through the galaxy, avatars bearing lightsabers, and Star Wars adventures taking place in the virtual world of ALICE. Students will learn computer programming principles and get a taste of using the Java programming language. Students will create several of their own 3D animations from conception to finished product. Students will be able to export and share their video animation files with others.

What you can expect from this workshop:

• An introduction to the basic functions of ALICE
• How to import and customize avatars, objects and backgrounds
• Practice programming avatars to move, talk and react
• A working understanding computer science principles
• Orientation in 3D virtual worlds including directional commands, rotations and jumps
• How to record and save animations in a virtual reality format
• Learn how to enter the ALICE competitions
• Take home your own custom animation files
• View files on the new ALICE Player

Class Structure and Learning Goals:

Each day includes follow-along instruction on how to use the 3D object oriented software called ALICE and ample time for students to work individually or in teams so they can apply the concepts they learn in the class to their own virtual reality animations. Students wrap up
each day with a group reflection on what they have learned and share what they would like to learn the next day.

**Prerequisites:**

- Must be a current student in grades 5-8
- Have some experience in block programming
- Have an interest in learning how to make virtual reality animations
- Eager to ask questions, share ideas, and help others in the class

Each day will consist of instruction and ample time for students to work on their own animation projects.

**Topics to be covered each day include:**

**Day 1:**
- Presentation of ALICE animations highlighting program features and capabilities
- Introduction to ALICE programming fundamentals
- How to create a virtual world environment
- Practice importing and customizing avatars and objects
- Introduction to directional 3D movement
- Brainstorm ideas for custom animation

**Day 2:**
- Present/Pitch animation ideas to classmates
- Create storyline, create 3D world environments, customize avatars and import objects
- Practice moving avatars and objects
- Introduction to loops, conditionals and parameters

**Day 3:**
- Display animated world components and storylines to class
- List and/or sketch out animation scenes
- Practice simplifying code by using loops, conditionals and parameters
- Practice recording and saving clips of your 3D animation
- Introduction to ALICE Player

**Day 4:**
- Advanced features in ALICE
- Debugging of programs
- Viewing class animations
- Feedback on each other's animations

**Day 5:**
- Revisions of final animations
- Presentation of all final animations
- Saving and exporting final animations

**About ALICE**
San Diego Supercomputer Center StudentTECH Workshop 2020
Alice is an innovative block-based programming environment that makes it easy to create animations, build interactive narratives, or program simple games in 3D. Unlike many of the puzzle-based coding applications Alice motivates learning through creative exploration. Alice is designed to teach logical and computational thinking skills, fundamental principles of programming and to be a first exposure to object-oriented programming.¹

**About Ruth Maas**

Ruth Maas taught middle and high school computer science for nearly a decade. She has presented at numerous technology workshops and conferences. She teaches online courses in technology including topics such as artificial intelligence, the impact of social media on society, and computer programming. Students from Mrs. Maas’ summer courses have won the MIT App of the Month Award.

**References**