

# COMMUNITY COLLEGE CORNER

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## Alice Grows Up: Transitioning from **Alice 2 to Alice 3** in Community College Programming Courses

**ALICE SOFTWARE IS A FREELY AVAILABLE**



**TEACHING TOOL** from Carnegie Mellon University (CMU) designed to be a student's first exposure to object-oriented programming. In Alice's programming IDE, 3-D objects (e.g., people, animals, and vehicles) populate a virtual world and students create programs to animate the objects. By manipulating the objects in their virtual world, students gain experience with the programming constructs typically taught in an introductory programming course. The lead researcher and designer of Alice 2 was the late Professor Randy Pausch, co-founder of the Entertainment Technology Center at CMU and famed author of the *Last Lecture*. A collaborative grant project involving both two-year and four-year colleges demonstrated enhanced student enthusiasm for computer programming and increased student retention of computer science majors when using Alice 2.

Through another collaborative grant, *Transition: Alice 2 to Alice 3 in Community Colleges* from the National Science Foundation, Wanda Dan (PI) and Don Slater (Co-PI) of CMU, partnered with faculty members at three different community colleges: Camden County College in New Jersey, Collin County Community College in Texas, and Community College of Allegheny County in Pennsylvania. Using the beta version of

Alice 3, computing faculty at these community colleges are transforming the way they teach introductory programming, software design and problem solving-skills. Professors William Taylor (Co-PI), Anita Wright and Rose Boiano of Camden County as well as Professor Tebring Daly of Collin County have transitioned from Alice 2 to Alice 3 in teaching their fundamentals of programming course. Professors Don Smith and Eileen Wrigley of Allegheny County also have upgraded and integrated Alice 3 into their programming with Java course. Each of the three community colleges has included students and alumni as teaching assistants and/or peer instructional tutors, providing an extra layer of student support. Preliminary feedback from the second year of the project is promising. When using Alice 3 as an active learning technique, these faculty members have reported improved student enthusiasm, attendance, retention, and perseverance in their programming courses. The ultimate goal is to graduate more students in the discipline of computer science by engaging students early in the creative process of programming through the use Alice 3.

These dedicated professors are also serving as mentors to other community college faculty by hosting summer training seminars, developing teaching materials appropriate for entry-level programming students, and providing support to other faculty who want to incorporate the Alice 3 software into their

computing programs. Information about summer 2011 faculty development seminars and available instructional resources appear online at [aliceprogramming.net](http://aliceprogramming.net).

As with Alice 2, Alice 3 is a user-friendly 3-D graphical programming IDE that takes advantage of millennial students' multimedia driven attraction to animated games. However, that is where the similarity ends. Alice 3 is a truly object-oriented implementation that includes a more sophisticated IDE, an extensive gallery of 3-D models including SIMS 2 characters with complex behaviors from the video game giant Electronic Arts.

Further, this new version has the powerful ability to port Alice 3 code directly into the NetBeans IDE through a plug-in. The original Alice 3 program can be viewed, executed, and modified as Java code. This allows students to become skilled at reasoning with fundamental programming constructs before having to tackle the detail-oriented syntax issues of a high-level programming language such as Java or C++. The Alice 3 software is being produced by a talented development team at CMU led by research scientist Dennis Cosgrove and is freely available for download.

### Acknowledgment

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### Useful websites

[alice.org](http://alice.org) and [alicedownloads.org](http://alicedownloads.org)

- » Alice online community
- » Additional 3D models downloaded for free as well as PC and Mac versions of Alice including Alice 3 beta for Windows XP, Vista and 7

[aliceprogramming.net](http://aliceprogramming.net)

- » Helpful information and resources for teaching with Alice
- » Course calendars, lectures, labs, assignments, exams, solutions, and more

[visualization.sju.edu](http://visualization.sju.edu)

- » The Center for Visualization at Saint Joseph's University, Philadelphia, PA
- » Archive of past newsletters, listing of current grants, and other helpful information for Alice users.



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