Provost’s Learning Innovations Grant for Faculty
Request for Full Proposal
2008-2009

Please hand-deliver your completed grant proposal (4 pages, plus attachments),
the original plus 12 copies, to:
Susan DeWoody, 1530 Wallace (5)
by 4:30 p.m.
Monday, March 17, 2008.
No hand written proposals will be accepted.
Notification of awards will be made by Monday, April 14, 2008.

Project Title: Teaching Animation in a Virtual Space: The Use of Second Life as an extended approach for on-line learning of Graphics Related Courses.

Applicant(s):

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<th>Name</th>
<th>Telephone</th>
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<tr>
<td>Joe Geigel</td>
<td>475-2051</td>
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<th>Dept.</th>
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<td>Computer Science</td>
<td>GCCIS</td>
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Teaching Animation in a Virtual Space: The Use of Second Life as an extended approach for on-line learning of Graphics Related Courses

Project Summary
The student lies in waiting for her turn to be tested for the examination. Finally, the instructor says go. The student raises her hand and suddenly items in the room start to magically move: some by predefined paths, others following the laws of physics. Previously lifeless puppets and figures are suddenly animated as they walk, jump, and dance on the classroom floor. Although this might sound like a scene out of the latest Harry Potter novel, this does not describe a class given at Hogwarts School of Magic. Instead, this is a proposed vision of a Computer Science Course: Computer Animation – Algorithm and Techniques, to be offered on-line and completely within a 3D Virtual Space. Students will assemble on a private island within the Second Life world to learn, discover, and, most importantly, interactively demonstrate the technical aspects of Computer Animation. This project proposes the use of Second Life, an online shared virtual space, for teaching Computer Animation and will leverage the experiences and support of RIT Online Learning Department who has purchased an island in Second Life for online educational purposes and exploration.

Targeted learners or population
The course will be offered through the Computer Science department but would be opened to anyone interested in animation algorithms including students in other departments within GCCIS as well as those studying 3D animation from a non-technical perspective (e.g. Design students in CIAS). Students in the latter category in particular, will be encouraged to apply. Computer Animation – Algorithm and Techniques (CAAT) is an upper level Computer Science course typically taken by 4th and 5th year students. Although enrollment for this section of the course will be limited to 20, the lessons learned though this experiment will be applied to future offerings of CAAT, in both a completely online or blended environment, as well as other graphics related courses given by CS and other programs within RIT. Thus, the immediate impact of the proposed offering will affect approximately 20 students. However, the longer term impact, as the lessons and tools are applied to future course offerings, can affect hundreds.

Is this for a current course or new course?
Computer Animation – Algorithms and Techniques is an existing course within the CS curriculum. A new method of course delivery is proposed, though the content and learning outcomes of the proposed offering will remain the same as the traditional offering of the course. Traditional lectures and discussions will be delivered within the Second Life space. Assignments and projects, however, traditionally submitted via code, will instead be demonstrated interactively within the 3D world.
**Anticipated impact on teaching and/or learning.**
The project will have 3 major goals towards teaching innovation:

1. To determine, assess, and summarize best practices in online teaching using Second Life for traditional classroom methods based on experiences of those in the Second Life Education community. Towards this end, the proposal includes travel expenses to attend the Second Life Community Convention in Tampa (Sept 7-8, 2008). This particular conference includes a complete track specifically designed for educators looking to hold classes in Second Life. ([http://slcc2007.wordpress.com/education-track/](http://slcc2007.wordpress.com/education-track/)). The program for the 2008 conference has yet to be announced, however, based on the 2007 program (which is included as an attachment to this proposal), this year’s conference should prove to be just as helpful in exploring the latest advancements around education in Second Life.

2. To assess the advantage of using a 3D virtual space in the teaching of graphics related content (in this proposal, specifically technical aspects of 3D Computer Animation.) A secondary goal of this second point is to see if this form of presentation will make these technical concepts more accessible to those with a less technical background than those who traditionally have taken the course.

3. To create guidelines, scripts, and tools for the teaching of Graphics related content within the Second Life environment.

Both the results of my investigation, as well as any tools created for the class, will be shared via a website maintained by the RIT Online Learning Department, for any faculty wanting to teach in Second Life.

**Impact on student success**
Graphics related courses are uniquely suited for a virtual world, as the many of the concepts taught in the class are integral to the implementation of the Second Life world itself. In the case of the proposed course, students will learn animation by performing animation in a 3D space, which itself, is built upon the algorithms of animation. Assignments in the course will be assessed by interactive student demonstration of the algorithms within the 3D space using the scripting language provided by Second Life (Linden Script) as a framework. It is my hypothesis that adding this additional level of immersion in the 3D space will result in greater student enthusiasm and accessibility to the concepts inherently concerning the definition and programming of motion within a 3D space.

**Measurement and Dissemination**
Computer Animation – Algorithms and Techniques has been offered annually since 2002. Since the proposed offering will have the same learning outcomes and objectives as the traditional sections of this course, student performance in these past sections will be used as a point of
comparison for the new method of delivery.

Dissemination plans includes the presentation of conclusions, experiences, and findings at departmental, Institute, and external venues. More specifically, the following venues will be targeted:

- Presentation at a Computer Science Colloquium
- Presentation at FITL
- Paper submission to the SIGCSE (ACM Special Interest Group on Computer Science Education) annual conference. (Deadline: September 2009)
- Paper submission to the annual Microsoft conference on the use of Games in Computer Science Education. (Deadline: October 2009)

In addition, as mentioned above, best practices as well as tools created for the class will be shared on the Online Learning Department’s Second Life resource Web site.

Rationale

Since its introduction in 2004, Second Life (http://www.secondlife.com) has gained quite a bit of attention in both the commercial and educational arenas. From an educator’s standpoint, Second Life provides an alternative to traditional online distance learning methods by introducing a 3D dimensional world and the ability to interact within this virtual 3D space. Many educators, including those at RIT, (e.g. PLIG grant awarded to Hair and Barnes last year), have taken advantage of this new paradigm by offering online courses in the virtual space. The approach taken by most in these courses involve mimicking teaching methods that occur in a physical classroom (e.g. lectures, discussions, presentations, social interactions) and recreating these methods in the virtual space.

RIT has recently purchased an island on Second Life for educational purposes, which is supported and managed by Online Learning. After discussions with Joann Humbert and Katie McDonald from Online Learning, I am excited to work with them to create a learning environment within Second Life that combines resources and tools for traditional class delivery in the virtual space (mentioned above) with the interactive demonstration capabilities required specifically for this animation class. The creation or tools and scripts (written using Second Life’s native scripting language Linden Script) will be required to support these interactive demonstrations. The creation of these scripts will be a major component of this grant. It is my intention that the tools created for this offering of CAAT could serve as a model for future graphics related course offerings, both artistic and technical, within Second Life. I expect that these interactive demonstrations will require the use of props that would either be created or purchased in Second Life. The proposal includes $200 to cover the cost of these props.

The proposed course offering also has the support of the Computer Science Department, which is interested in exploring means of utilizing this new venue of online learning. The department has committed $1000 towards the project for a student grader to assist the instructor in managing the online offering.
The proposer is the original designer of the CAAT course and has taught the course annually since 2002. In addition, he has been a member of Second Life since 2006 (SL name: Bingo Rydell) and has had several projects in upper level graphics courses that he has taught built and demonstrated in Second Life.

**Timeline**

<table>
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<th>Semester</th>
<th>Event Description</th>
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<td>September 2008</td>
<td>Attend Second Life Community Convention in Tampa to gain knowledge of current best practices for education in Second Life</td>
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<tr>
<td>Winter 2008-9</td>
<td>Prepare materials, scripts, and tools for Spring offering (course release requested)</td>
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<tr>
<td>Spring 2009</td>
<td>Online offering of the CAAT in Second Life</td>
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<td>FITL presentation / CS colloquium</td>
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<tr>
<td>Summer 2009</td>
<td>Preparation of paper submissions to SIGCSE and Microsoft Conferences</td>
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Attachments

- Proposal Budget
- Letter of Support from Computer Science Department chair
- Table of contents of 2007 Educators Program of the Second Life Community Convention
Funds can be used to cover release time, pay student workers, and/or purchase supplies and services (such as CD pressing, video production, digitizing, photography). Funds will generally not be available for activities consistent with normal college business, overload pay, scholarly research, capital equipment purchase or travel - though the latter will be considered if a clear connection to the project can be demonstrated.

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**DEPARTMENTAL/COLLEGE SUPPORT**

Describe support provided by the department/college in addition to grant request. Please be specific.

Departmental support for a student grader to assist with the class (see proposal)
I am writing this memo to express my strongest support for Dr. Joseph Geigel’s PLIG proposal titled “Teaching Animation in a Virtual Space: The Use of Second Life as an extended approach for on-line learning of Graphics Related Courses.” The project described in his proposal is an innovative and novel approach to delivering online courses.

This project has the potential of having a significant impact on the Department in a number of ways. It will add another offering to the catalog of online courses offered by the Department. Additionally the use of a public space, in this case SecondLife, will allow individuals outside of RIT to take the course. Not only will this have the benefit of making the Computer Science Department more visible to the computing community in general, it will also have the added benefit of providing access to a new audience for the Department. Because the course will be delivered in a public space, it will be accessible to students at the high school level, which in turn may encourage them to pursue careers in computing. I believe that this work could serve as a model for other institutions and that it will be possible to obtain external funding to continue this work after the proof of concept phase is completed.

In summary, I offer my strongest support for Dr. Geigel in this endeavor and I am certain that he can execute it in an exemplary fashion. I have reviewed the budget associated with the project and will provide Dr. Geigel with the course release time and grading support that he has requested. If you have any questions or need further information, please contact me at 585-475-5178.
Second Life Education Workshop 2007
Part of the Second Life Community Convention
Chicago Hilton, 24th-26th August 2007
The Education Track Gratefully Acknowledges Support From

Non-Profit Sponsors

Global Kids

MacArthur
The John D and Catherine T. MacArthur Foundation

Local Education Sponsors

And the support of all the sponsors of the Second Life Community Convention 2007
http://slcc2007.wordpress.com/
Committee

Conference Chairs

Dr. Daniel Livingstone, School of Computing, University of Paisley, UK (Buddy Sprocket)

Jeremy Kemp, School of Library & Information Sciences, San José State University (Jeremy Kabumpo)

In-World Events Co-ordinator: Beth Ritter-Guth, Lehigh Carbon Community College (Desideria Stockton)

Education Track Program Committee

Cheryl Carter (Cheryl Wiggins)
Paul Doherty, The Exploratorium, San Francisco (Patio Plasma)
Jeska Dzwigalski, Linden Lab (Jeska Linden)
Chris Hambly, Audiocourses.com (Audio Zenith)
Barry Joseph, Global Kids (SL: Globalkids Bixby / TSL: Barry Gkid)
Claudia L’Amoreaux, Linden Lab (Claudia Linden)
John Lester, Linden Lab (Pathfinder Linden)
Patrick Lichty, Columbia College Chicago (Man Michinaga)
Chang Liu, Ohio University (Chang Tuxing)
Sarah Robbins, Ball State University (Intellagirl Tully)

Session Moderators

Claudia L’Amoreaux (Claudia Linden)
Edward Lamoureaux, Bradley University (Professor Beliveau)
John Lester (Pathfinder Linden)
Alan Levine, New Media Consortium (CDB Barkley)
Ramesh Ramloll (Moriz Gupte)

And thanks to the numerous co-ordinators, in-world moderators, Chicago volunteers and assorted helpers!

All contributions are copyright by their respective authors.
Preface

In the year since the first SLCC Education Workshop, we’ve witnessed the growth of an international community, the evolution of an extensive Second Life ecosystem that includes blogs, wikis, mashups, and the development of model projects and practices that are shaping new policies for the integration of Web 2.0 and the 3D Web in education.

In August, 2006, the Second Life Educators (SLED) listserv had 500 members; only a year later, membership is close to 3900. Early adopters, now seasoned elders, pass along best practices, keynote conferences, and offer graduate courses about teaching and learning in Second Life. The Simteach.com SLED Wiki, hosted by conference co-chair Jeremy Kemp, lists 161 colleges and universities active in Second Life.

The Second Life K12 community—SLEDT—has 475 members. Educators working with 13-17-year-olds have launched projects from the U.S., the UK, Australia, Tasmania, Singapore, Turkey, and Japan. Global Kids and the teen library project, Eye4You Alliance, provide creative contexts for teens to practice leadership. Communities for teen scripters, builders, and mentors have emerged—several teens serve as developers for new adult-owned K12 projects.

We’ve seen a maturation of the ecosystem of blogs, wikis and mashups that links and extends the 3D world of Second Life with the flat web. The Second Life Best Practices in Education: Teaching, Learning, and Research conference had 1300 attendees on multiple sims during twenty four hours of workshops and presentations. This was the first in-world conference organized entirely by Second Life educators. It was streamed by the SL Cable Network in real-time to the web with live commentators. Presentations are archived on the conference wiki.

Funding organizations recognize the education innovation underway in Second Life. Sloodle, the Second Life + Moodle mashup (introduced by its originators at last year’s SLCC), won an Eduserv grant to take development to the next level. The SaLamander Project, introduced here in these proceedings, received a grant to develop a working prototype that will link Second Life learning objects with existing learning object repositories like MERLOT.

What’s ahead? SLED members are influencing education policy, identifying how learning in SL develops knowledge age skills (SchomePark, Open University), bridging the gap between their Second Life projects and state standards (Ramao Islands, Suffern Middle School, New York), and designing assessment models and tools. We offer our enthusiastic appreciation to the SLED community’s emerging leaders for perseverance in the face of often skeptical administrations and for the courage to reinvent yourselves as educators and learners. We’re honored to work with you in Second Life.

Claudia L’Amoreaux/Claudia Linden & John Lester/Pathfinder Linden
Linden Lab
August 2007
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