Richard T. Skarbez

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P R O F I L E

I am a computer scientist/engineer pursuing a Ph.D. in computer science at the University of North Carolina, in Chapel Hill. My primary research interest is the development and evaluation of interaction techniques in collaborative applications, particularly those involving non-traditional computing devices, including personal and mobile computing devices and large-scale shared collaboration spaces. Other research interests and areas of prior work include multi-projector display systems (especially calibration techniques), graphics hardware, and command and control of semi-autonomous device networks.

E D U C A T I O N

The University of North Carolina, Chapel Hill NC   -   Enrolled since August 2005

- Pursuing a Ph.D. in Computer Science

- Research Assistant with the Renaissance Computing Institute (RENCI), supervised by Prof. Rob Fowler

- Formerly Research Assistant on the Wide Area Visuals project with Prof. Henry Fuchs and Herman Towles

- Collaborator with the Effective Virtual Environments group, led by Professors Fred P. Brooks and Mary Whitton

The Pennsylvania State University, University Park PA   -   Graduated December 2004

- B.S. in Computer Engineering with minors in Mathematics and Philosophy

- Graduated with Honors, thesis title: "A Presentation of the Semantics and Formal Properties of C3L, an Event-Driven Distributed Control Language"

E X P E R I E N C E

Student Engineer, Renaissance Computing Institute (RENCI), Chapel Hill NC — Aug. 2008 - Present
At RENCI, I have worked on a variety of projects, including developing of the mobile website for NC-FIRST, a weather resource for emergency managers and personnel in the state of North Carolina, contributing to several proposals involving the use of sensor networks and mobile computing devices in emergency response applications, developing new interaction techniques in RENCI's shared visualization environments, especially the Social Computing Room (SCR), and developing OnSite, a mixed reality game and game development tool, in collaboration with Prof. Adriana de Souza e Silva at NC State University.

SDET Intern, Microsoft, Mac Business Unit, Redmond WA — May 2008 - July 2008
In this role, I was solely responsible for designing, implementing, and testing an automated multi-computer test process for the Mac Messenger test team. This process, developed in Python, enables a single test script to request multiple computers from a pool, start applications on each of these computers, control the behavior of each instance of the application, and log the combined results of the test. Other responsibilities included the design of the test plan for several new Messenger features and performance of some manual testing.

Instructor, COMP 575 (Computer Graphics), The University of North Carolina — Aug. 2007 - Dec. 2007
As instructor of COMP 575, the undergraduate computer graphics course at UNC, I was solely responsible for all aspects of teaching the class, including preparing the syllabus and course schedule, choosing a course textbook, preparing lectures and assignments, and grading. There were 17 students in the class, including sophomore, junior, and senior level undergraduates, graduate students, and professional non-degree students.

Research Assistant, Wide Area Visuals Project, The University of North Carolina — Aug. 2005 – Aug. 2007
The goal of the Wide Area Visuals project is the development of a camera/projector/computer system that, using commodity hardware, allows for the automatic calibration of a casually-aligned set of projectors, and then the use of those projectors for displaying wide field-of-view visuals, in applications such as flight simulators. My primary role on this project has been development on the camera and projector calibration subsystem. In this role, I have developed software using C++ and MATLAB and generated documentation for this software. Outside of the development process, I have contributed to several papers describing our process, and performed demos of the system, including in a group demonstration at I/ITSEC 2005 in Orlando.

Student Researcher, Applied Research Lab, University Park PA — Mar. 2004 - Jul. 2005
At ARL, I was a student researcher working on the Command, Control, and Communications Language (C3L) project in the Emergent Sensor Plexus (ESP) group. As part of my research, I developed the semantics for the C3L

programming language, wrote several formal proofs concerning the properties of programs written in the C3L language, and designed and coded software used in the implementation of the C3L interpreter, including a parser and a pathology checker. Also, I contributed to the development of the software design methodology for the C3L language, and contributed to papers and book chapters prepared by the group.

Instructional Technology Intern, Forest City Regional S.D., Forest City PA — Jun. 2003 - Aug. 2003
Working at my old high school, Forest City Regional School District, I acted as the temporary assistant technical coordinator. In this capacity, I repaired, configured, built, and installed computers for use in classrooms. Also, I was partially responsible for maintaining the school network, and as a result performed physical maintenance on the installed network, and used various administration tools, including the MMS and Altiris software packages.

Intern - Front-End-Of-Line Processing, IBM Microelectronics, Endicott NY — May 2002 - Aug. 2002
During this internship, my primary project was the development of a procedure to automatically generate drill machine programs, from results generated by our testbed, to perform deep-deletion of panel defects. This is a procedure which was previously done manually by an engineer, by which panel defects, such as short circuits, are drilled out of the panel, allowing the defect to be corrected. In the development of this new process, I worked with an interdepartmental team of engineers. In addition to this project, I also reviewed and revised documentation for drill testing, and performed tests using the drill machines.

Intern - Digital Video Products Group, IBM Microelectronics, Endicott NY — May 2001 - Aug. 2001
My primary task with the DVPG was the design and implementation of a relational database which would store test procedures and test results, which was intended to replace the existing hardcopy filing system. This project involved eliciting feedback from the engineers using the system to determine necessary features, and implementation of the database using Lotus. In addition to this project, I administered both hardware and software validation tests, and wrote a small amount of test code, using assembly, an internal command language, and C++.

S K I L L S
• Comfortable with and experienced in both using and developing on Macintosh, Windows, and Unix operating systems

• Extensive development experience with C, C++, Objective-C, Python, and MATLAB

• Limited development experience with other programming languages, including SML, MIPS assembly, Mathematica, and VHDL

• Very experienced in writing and editing, both technical and otherwise

M E M B E R S H I P S   &   L E A D E R S H I P   E X P E R I E N C E
• President, Computer Science Student Association (UNC, April 2007–April 2008)

• Coordinator, Graphics Lunch (UNC, Fall 2006–Present)

• Graduate Student Member, IEEE

• Student Member, ACM

• President/Editor-in-Chief, PHROTH, Penn State's Humor Magazine (PSU, Fall 2003-Spring 2004; Member Fall 2000-Spring 2005)

• Recording Secretary and Webmaster, HKN, Electrical and Computer Engineering Honors Society (PSU, Fall 2003 - Spring 2004)

• Member/Competing Debater, Penn State Debate Team

• Member, Golden Key International Honor Society

• One of two System Architects, LUDWIG project (Fall 2004)