Rob Kooper

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EDUCATION

Georgia Institute of Technology, Atlanta, GA, USA — **Sep 95 - Present**
Expected degree: Ph.D. 2000. GPA 4.0

Delft University of Technology, Netherlands — **Sep 88 - Aug 94**
Degree: ir August 1994.

EXPERIENCE:

Graphics, Visualization & Usability Center (GVU), — **Sep 95 - Present**
College of Computing, Georgia Institute of Technology, Atlanta, Georgia
Graduate Research Assistant

- Working on the phobia project. Continuation of the project started in May 93. Currently we are expanding the treatment of people using VR to other phobias then acrophobia, the fear of heights. Also helping porting the software toolkit and the environments to other platforms, HP and PC.
- Working on cyberguide. How can a small handheld computer assist in exploring physical spaces. There is already a cyberguide that will assist visitors to the GVU during demo days. Currently we are working on a system that will use GPS to assist in finding your way in Atlanta.
- Working on classroom 2000. If each student has a computer during the lecture what notes are taken. These notes are then made available on the WWW for all the students. I am focussing on creating a prototype that will enable the students to take notes on a Apple Messagepad with the Newton OS.

Queen Mary & Westfield College — **Oct 94 - Aug 95**
London, England.
Research Assistant

- Worked on a project involving three Universities in the UK for applications using distributed Virtual Reality.Responsible for the testing of the Division software as well as the setting up of the networking software.
- Wrote a library for reading a world description on top of the Division software. During my stay I was also responsible for maintaining the Division software on SGIs and other VR packages on the SGIs.
- Created an application that visualizes the stock market in Virtual Reality. When running the application, the view is updated continuously while the shares are changing. This enables the user to have a global view of the changing patterns of the stock market.

Graphics, Visualization & Usability Center (GVU), — **May 93 - May 94**
College of Computing, Georgia Institute of Technology, Atlanta, Georgia
Visiting Research Scientist

- Simple Virtual Environments Development Co-developed Virtual Reality Toolkit (SVE) using Silicon Graphics (GL), Ascension Flock of Birds and Polhemus Isotrack II trackers, Virtual Research EYEGEN 3 and Flight Helmet head-mounted displays, Virtual Technologies Cyberglove, StereoGraphics StereoEyes stereoscopic display system.
  - Implemented the loading of Wavefront models, Gouraud shading, texture mapping, audio, and stereoscopic rendering.
  - Incorporated networking capabilities for remote tracking.
  - Adapted the development environment to use a version control system.
  - Maintained and documented new SVE functionality.
  - Trained new users to develop new SVE applications.
- Treatment of Acrophobia using Virtual Reality. Designed and conducted experiments with a Virtual Reality system to be used by therapists in the treatment of acrophobia, the fear of heights.
  - Built virtual environments for use in phobia treatment experiments: a glass elevator, bridges across a canyon and balconies overlooking a city.
  - Set up and ran the experiments in collaboration with a psychologist.
  - Presented the results of this research in lectures at Georgia Tech, Clemson and Clark-Atlanta Universities.
  - Put together demo videos presenting an overview of the Phobia Project.
  - Conducted frequent VR demonstrations for GVU open houses, visiting researchers, journalists and several broadcast TV segments.
  - Provided images featured on the cover of the Virtual Reality journal Presence and in the book Virtual Reality

ExCursions in C by Chris Watkins.

- World Wide Web Database for GVU Center Helped Initiate the use of WWW at Georgia Tech and designed templates for GVU research groups.
  - Designed project pages for the Virtual Environments group at GVU.
  - Created pages to access news, technical reports and general information about GVU.
  - Created and maintained the Meta Virtual Reality page, which provides pointers to many different Virtual Environments and Virtual Reality home pages across the World Wide Web.

Department of Industrial Design, **Nov 92 - Jan 93**
Delft University of Technology, Delft, Netherlands.
Research Assistant

- Worked on a project using Virtual Reality to visualize a mathematical formula for describing the growth of human skulls. The underlying theory states that it is possible to use this formula to describe other objects as they grow older and younger. Implemented the project on a Virtual Reality machine from W-Industries.
- Maintained and improved locally-developed Virtual Reality library. This library was built on top of the library provided by W-Industries.

Department of Electrical Engineering, **July 92 - August 92**
Czech Technical University, Prague, Czechoslovakia.
Summer Internship

- Worked on Camera Calibration project. Researched methods for determining the focal length and image center of camera lenses. Developed a new method for measuring the focal length of camera lenses.

DIRECTED RESEARCH:

Department of Technical Mathematics and Informatics, **May 91 - Aug 91**
Delft University of Technology, Netherlands

- Wrote a tutorial for D2M2 a User Interface Management System.

PUBLICATIONS:

L. Hodges, B. Rothbaum, R. Kooper, D. Opdyke, T. Meyer, J. de Graaff, J. Wiliford, and M. North, *Presence as the defining factor in a VR application*, Tech. Rep. GIT-GVU-94-6, Graphics, Visualization & Usability Center, January 1994.

L. Hodges, B. Rothbaum, R. Kooper, D. Opdyke, T. Meyer, J. de Graaff, J. Wiliford, and M. North, *Presence as the defining factor in a VR application*, in Technical Sketches of SIGGRAPH 94, ACM, 1994.

L. Hodges, B. Rothbaum, R. Kooper, D. Opdyke, T. Meyer, J. de Graaff, J. Wiliford, and M. North, *Virtual environments for treating the fear of heights*, IEEE Computer, vol. 28, pp. 27--34, July 1995.

R. Kooper, *Camera calibration*, Tech. Rep. K335-1992-58, Czech Technical University, Department of Electrical Engineering, Prague, Czechoslovakia, August 1992.

R. Kooper, *Virtually present: Treatment of acrophobia by using virtual reality graded exposure*, Master's thesis, Delft University of Technology, Delft, the Netherlands, August 1994.

R. Kooper, B. Watson, L. F. Hodges, Barbara O. Rothbaum, Greg Newton, Drew Kessler and Doug Bowman *Overcoming phobias using virtual reality*, in Digital Bayou SIGGRAPH 96, ACM, 1996.

B. Rothbaum, L. Hodges, R. Kooper, D. Opdyke, and J. Wiliford, *Effectiveness of computer-generated (virtual reality) graded exposure in the treatment of acrophobia*, tech. rep., Graphics, Visualization & Usability Center, College of Computing, Atlanta, GA, January 1994.

B. Rothbaum, L. Hodges, R. Kooper, D. Opdyke, J. Wiliford, and M. North, *Effectiveness of computer-generated (virtual reality) graded exposure in the treatment of acrophobia*, American Journal of Psychiatry, vol. 152, no. 4, pp. 626--628, 1995.

B. Rothbaum, L. Hodges, R. Kooper, D. Opdyke, J. Wiliford, and M. North, *Virtual reality graded exposure in the treatment of acrophobia: a case study*, Behavior Therapy, vol. 26, no. 3, pp. 547--554, 1995.

M. Slater, V. Linakis, M. Usoh, and R. Kooper, *Immersion, presence, and performance in virtual environments: an experiment with tri-dimensional chess*, in VRST'96, ACM, 1996.

COMPUTER EXPERIENCE:

Languages	C++, C, Pascal, Cobol, Assembler (80x86, 68000), Perl, LEX, YACC
Window systems	OpenWindows, Sunview, X, GL, OpenGL
Operating Systems	Unix, DOS, OS/2
Platforms	Silicon Graphics, Sun SPARC, DEC Alpha, Sequent Dynix, PC