Deborah A. Carlson

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EDUCATION

Graphics, Visualization & Usability Center
Georgia Institute of Technology, Atlanta, GA 1993 - present
Ph.D. candidate, Computer Science
M.S. Computer Science, 3/96
GPA 3.8/4.0

Texas A&M University, College Station, TX, 1988 - 1991
Degree: B.S. Computer Science, Minor: Mathematics
GPA: 3.6/4.0 Cum Laude

WORK EXPERIENCE

9/93 - 6/97 **Graphics, Visualization & Usability Center**
Georgia Institute of Technology, Atlanta, GA
Graduate Research Assistant under Professor Jessica Hodgins

Created software and physical simulation for *Atlanta in Motion*, a SIGGRAPH '96 Electronic Theater video highlighting research in dynamic human simulation.

Developed system to automate creation of dynamic simulations.

Integrated OpenInventor and RenderMan graphics into the animation development environment.

Research in simulation levels of detail for real-time animation.

Graduate Teaching Assistant (Winter '96 and Winter '97)

Teaching assistant for undergraduate and graduate computer graphics courses.

6/96 - 9/96 **Alias|Wavefront**, Mountain View, CA
Summer Intern

Implemented collision detection for 3D objects in game authoring system.

6/95 - 9/95 **Silicon Graphics, Inc.**, Digital Media Systems Division, Mountain View, CA
Summer Intern

Responsible for coding, testing, porting, and benchmarking 3D graphics software for OpenInventor 2.1 performance release.

8/92 - 5/93 **IBM Federal Systems Company**, Houston, TX
Co-op Programmer

Space Station Freedom Data Management System group, responsible for testing the Master Object Database Manager software.

6/92 - 8/92 **Texas Transportation Institute**
Texas A&M University System, College Station, TX
Research Assistant

Produced realistic drive-through animations of proposed highway plans for use in court. Responsible for writing software tools to automate animation production from CAD data and key-frame positions.

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RELEVANT PROJECTS

- Developed OpenInventor action to output frames from animations of dynamic simulations to a RenderMan RIB file, including automatic shadow-map generation for lights in a scene graph and motion-blur and depth-of-field effects. Used for producing SIGGRAPH ’96 Electronic Theater video *Atlanta in Motion*.
- Implemented simulation levels of detail to achieve real-time animation of multiple dynamically simulated creatures in a virtual environment.
- Created metaballs modeler to demonstrate OpenInventor manipulators.
- Used implicit surfaces to generate smooth skin around the joints of rigid-body geometry.
- Developed “Virtual Puppy” to demonstrate the embedding of animation and behaviors for a computer-generated character in the Inventor file format.
- Added camera motion recording and playback capabilities to the VR system used by the Virtual Environments research group.
- Created ray-tracer which uses MGF spectral colors and procedural materials and lights.

PUBLICATIONS

D. A. Carlson and J. K. Hodgins, “Simulation Levels of Detail for Real-Time Animation,” in *Proceedings of Graphics Interface ’97,* pp 1-8. (May 1997).

COMPUTER SKILLS

OpenInventor
RenderMan API and shading language
IRIS GL
IRIS Performer
Alias PowerAnimator
C and C++
Java
UNIX

RELEVANT GRADUATE COURSES

Computer Animation
Computer Graphics
Advanced Rendering
Virtual Environments
Alias Modeling and Animation I & II
Human Computer Interaction I & II
Robotics and Computer Vision
Simulation of Interactive Real-Time Dynamic Systems
Color Theory

HONORS

President’s Fellow, Georgia Institute of Technology
National Merit Scholar, Texas A&M University
Lechner Fellow, Texas A&M University
Upsilon Pi Epsilon Computer Science Honor Society, Texas A&M University

REFERENCES

Available upon request.