

Carlos D. Correa

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Summary

To obtain a position in the field of Computer Graphics and Visualization, in a scientific laboratory or a corporate environment, requiring outstanding analytical, programming and research skills in the search and development of new and efficient ways of generating, analyzing and visualizing data and images.

Education

PhD.Candidate, Electrical and Computer Engineering. Rutgers University, New Brunswick, New Jersey, GPA 4.0/4.0.

Master of Science, Electrical and Computer Engineering. Rutgers University, New Brunswick, New Jersey, January 2003, GPA 4.0/4.0.

Bachelor of Science, Computer Science. EAFIT University, Colombia, 1998, Recipient of the Academic Excellence Award.

Skills

Computer Graphics and Visualization: OpenGL, GPU Programming (Cg), OpenInventor, Java3D, VTK, Matlab, Performance Tuning and Optimization, 3D Geometry, Illustrative Techniques, Hardware accelerated Volume Graphics, Real-time Rendering.

Programming: Object oriented programming, C/C++, Java, GPU programming, GUI programming (MFC, Qt, Java), UML, Design patterns, Extreme programming.

Operating Systems: Linux, Windows.

Experience

Teaching Assistant, Department of Electrical and Computer Engineering, Rutgers University, New Brunswick, NJ, Sept. 2004 - Jan. 2005, Sept. 2006 - present:

- Concepts of Robotics and Computer Vision, Fall 2004, Fall 2006
- Concepts of Digital Signal Processing, Fall 2006

Research Assistant, Center for Advanced Information Processing, Rutgers University, New Brunswick, NJ

Visualization Lab, Jan. 2005 - present:

- Create novel rendering techniques for the exploration and deformation of volumetric datasets, using GPU programming on commodity graphics hardware to achieve interactive performance.
- Develop and optimize a volume animation software pipeline for the manipulation of large 3D models, using innovative computer graphics algorithms and exploiting GPU capabilities.
- Author and co-author several papers in the area of visualization and computer graphics.

Collaboration Group: Jan. 2001 - Dec. 2004

- Integrated software components for Parallel Worlds, a multi-modal collaborative system that combines

augmented reality and virtual environments.

- Created novel algorithms, user interaction tools and middleware components for distributed graphics, in a variety of platforms.

Research Assistant and Consultant, Virtual Reality Laboratory and Conexiones Project. EAFIT University, Medellin, Colombia, 1997-2000

- Designed and programmed computer graphics software for a multi-user immersive application called: “Collaborative Virtual Environments applied to Higher Education”.
- Led the creation of a start-up company to provide solutions based in virtual environments and interactive computer graphics.
- Developed software/graphics and networking components for educational multimedia software.

Selected Publications and Talks

Carlos D. Correa, Deborah Silver and Min Chen. *Feature Aligned Volume Manipulation for Illustration and Visualization*. IEEE Transactions on Visualization and Computer Graphics (Proceedings Visualization / Information Visualization 2006), vol. 12, no. 5, Sept.-Oct. 2006.

Carlos D. Correa, Deborah Silver and Min Chen. *Discontinuous Displacement Mapping for Volume Graphics*. Volume Graphics VG’06, Boston, MA, 30-31 July, 2006, pp. 9-16.

Carlos Correa. *”Hands-in” Visualization: An Active Approach for Interactive Manipulation of Volumetric Objects*. IBM Graphics and Visualization Student Symposium (Invited Talk). Dec 6, 2005.

Carlos D. Correa and Deborah Silver. *Dataset Traversal with Motion-Controlled Transfer Functions*. Proceedings of IEEE Visualization 2005. Minneapolis, Min. 23-28 Oct. 2005, pp. 359-366.

M. Chen, **C. Correa**, S. Islam, M.W. Jones, P.-Y. Shen, D. Silver, S. J. Watson, P.J. Willis (In Alphabetical Order). *Deforming and Animating Discretely Sampled Object Representations*. Eurographics 2005, State of the Art Reports (STAR), August 29 - September 2, 2005, pp. 113-140.

D. Silver, K. Yaws, **C. Correa**, W. Hurt, P. Mason and J. Ziriach. *Volumetric Manipulation for Dosimetry Simulations*. Poster Presentation at: Bioelectromagnetics 2005, Dublin, Ireland, June 19-24, 2005.

Activities

Reviewer for:

IEEE Visualization 2006

Workshop on Visualization for Computer Security, 2005

Transactions in Computer Graphics and Visualization, 2005

ACM Group 2005

IEEE Workshop on Wearable Computers 2006

ACM CHI 2006

ACM CHI 2005 (Late breaking results)

ACM Group 2003

Student Volunteer at:

Volume Graphics 2006

Workshop on Virtual Rehabilitation 2006

Workshop on Virtual Rehabilitation 2003

IEEE Visualization 2005

ACM CHI 2003

Awards

Young Researcher program beneficiary from the Colombian National Sciences Institute, January, 2000

Received honors in graduation from Computer Science, EAFIT University, December, 1998.

Full scholarship for B.S. studies for high academic achievement, EAFIT University, 1994.