

Yi Wang, Ph.D. Candidate, Computer Science

Virginia Polytechnic Institute and State University

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Career Interests

Combine 3D graphics technology with human factor knowledge to create innovative and highly usable applications.

Expected Graduation: Fall 2009

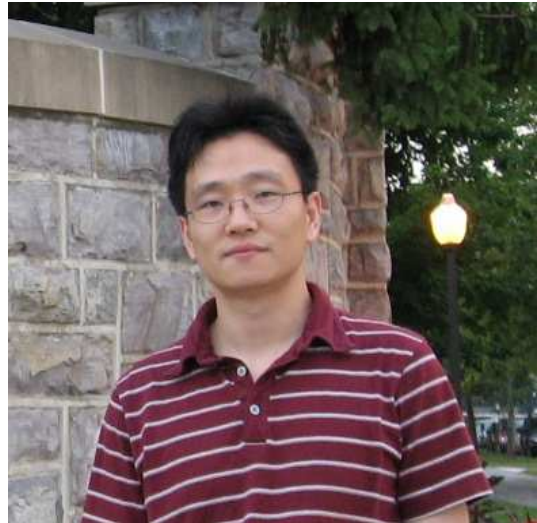
Looking for: intern in Summer 2009 and fulltime from Dec 2009

Education

Ph.D. Candidate, Computer Science, Virginia Tech, begin from September 2005, GPA 3.9

M.S., Computer Science, University of Maryland, Baltimore County, August 2005, GPA 4.0

B.S., Computer Science and Engineering, Beijing Institute of Technology, July 2000



Working Experiences

Research Programmer and Team Leader (Jul. 2000 – Jul. 2003), NEC Advanced Software Tech. (Beijing) Co., Ltd.

Three years of full-time working experience at Beijing, China and Kobe, Japan. Developed a series of 3D graphics card drivers and graphics diagnostic tools (OpenGL based). One year as a team leader.

Summer Internship (May. 2006 – Aug. 2006), Bosch Research and Technology Center, Palo Alto, CA

Creating prototypes for “3D User Interfaces for Video Surveillance in Large Buildings”.

Expertise and skills

C, C++, Java, OpenGL, GPU programming, 3D graphics and game development, information visualization, virtual environment, usability evaluation

Publications

Journals:

Yi Wang, Doug Bowman, David Krum, Enylton Coelho, Tonya Smith-Jackson, David Bailey, Sarah Peck, Swethan Anand, Trevor Kennedy, Yernar Abdrazakov. “Effects of Video Placement and Spatial Context Presentation on Path Reconstruction Tasks with Contextualized Videos”. *IEEE Transactions on Visualization and Computer Graphics* (to appear in Nov. 2008 issue).

Yi Wang, David Krum, Enylton Coelho, and Doug Bowman. “Contextualized Videos: Combining Videos with Environment Models to Support Situational Understanding”. *IEEE Transactions on Visualization and Computer Graphics*. Vol. 13, no. 6, Nov.-Dec. 2007.

Yi Wang, Kunmi Otitoju, Tong Liu, Sijung Kim, and Doug A. Bowman, “The Effect of Gaps Between Displays on Spatial Perception and Cognition Tasks in Virtual Environments”, *The International Journal of Virtual Reality*, vol. 6, no. 2, 2007.

Conferences:

Thomas DuBois, Bryant Lee, Yi Wang, Marc Olano and Uzi Vishkin. “XMT-GPU: A PRAM Architecture for Graphics Computation”. The 37th International Conference on Parallel Processing (ICPP-08).

Yi Wang, Kunmi Otitoju, Tong Liu, Sijung Kim, and Doug A. Bowman, “Evaluating the effects of real world distraction on user performance in virtual environments.” In Proceedings of the ACM Symposium on Virtual Reality Software and Technology. ACM Press, pages19-26, 2006.

Major Industrial Projects

OpenGL Trace and Regeneration Tool

This tool could record log files for all OpenGL commands, regenerate the dynamic scene and convert the log into C source codes. It helped 3D accelerator vendors and application developers find bugs and performance bottleneck in their products. As the team leader, I was in charge of software design, implementation, quality control and customer communication. Languages and Tools: C++, OpenGL.

3D Graphics Card Driver and OpenGL/Direct3D library

Developed a series of graphics card drivers with OpenGL and Direct3D support for NEC's TE series 3D accelerators. These cards were used by multiple companies including YAMAHA Corporation and Nintendo. Languages and Tools: C, OpenGL specification, DirectX, Linux Kernel programming, DRI.

Major Academic Research Projects

Design and Evaluation of Contextualized Videos interfaces

PhD dissertation, investigating how to combine captured videos with 3D models of the environment to improve the usability of each other. The potential applications of the research include video surveillance, route learning, and virtual tourism. Advisor: Dr. Doug Bowman.

Languages and Tools: C++, OpenSceneGraph, XML, 3D Studio Max, OpenCV

GPU Based Interactive Cloth Simulation for Moving Avatars

MS Thesis. Taking advantage of Graphics Processing Unit (GPU) on parallel computation, we achieved ten times acceleration by localizing collision detection and response on the GPU. The clothes geometry is modeled as a mesh hierarchy. The motion of coarse mesh is calculated on CPU and then sent to GPU for refinement using an innovative image space method. Advisor: Dr. Marc Olano.

Languages and Tools: C++, Cal3D, OpenGL Shading Language

Evaluating the Effect of Real World Stimuli on User Performance in Virtual Environments

In most virtual environments, we perceive stimuli from both the virtual world and the real world. How does the real world "distraction" affect our usage of the virtual environment? We performed a series of experiments on VTTM CAVETM to quantitatively evaluate the effects.

Languages and Tools: C, CAVE, DIVERSE VR library

Small Research Projects

Grabpad: bimanual gesture-based interaction for Gigapixel displays using Vicon tracking

Crossfire: a 5D+ data visualization tool, Java, Eclipse

Chord: a peer-to-peer distributed file management system using RMI, Java

Photo-realistic Rendering of Towels using Layered Modeling Method: RenderMan, C

Migrating Citation Context Search Engine from PostgreSQL To Lucene: Postgres, Lucene, Java

Graduate Level Classes

Computer Architecture, Algorithm Design and Analysis, Operating Systems, Computer Vision, Advanced Computer Graphics, Computer Graphics for Games, Real-time Shading, Virtual Environments, Distributed Virtual Environments, 3D User Interfaces, Information Visualization, Information Retrieval, Human Information Processing, Usability Engineering, Human Factors in Systems Design.

References

Doug Bowman, PhD, Virginia Tech, Email: bowman@vt.edu, Tel: (540) 231-2058

David Krum, PhD, USC Institute for Creative Technologies, Email: David.Krum@us.bosch.com, Tel: (310)-301-0374

Marc Olano, PhD, UMBC, Baltimore MD, Email: olano@umbc.edu, Tel: (410) 455-3094

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