Haoyu Wang

Personal Info.

Place and Date of Birth:	Shandong P.R.China | 18 November 1988
Address:	No.1068 Xueyuan Avenue, Shenzhen, P.R.China
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Education

Sep. 2011 - Jul. 2014	Master of Computer Science in **University of Chinese Academy of Sciences**	
	Major: Computer Graphics	Gpa: 3.35/4.0
Sep. 2007 - Jul. 2011	Bachelor of Control Science and Engineering in **Shandong University**	
	Major: Automation	Gpa: 3.31/4.0

Work Experience

Jul. 2014 - Current | *Research Assistant* — *Shenzhen Institutes of Advanced Technoloty*

Working in developping a medical simulating system for training interventional radiology skills. It is based on C++, MFC, OpenGL (4.0 or higher). Responsible for medical data visualization, physical simulation and mesh processing. Papers and Patents

Jul. 2012- Jun. 2014 | *Regular Student* — *Shenzhen Institutes of Advanced Technology*

Presented a novel approach to simulating wire-like instrument in virtual surgery. Rewrited the low-level old fixed-function OpenGL rendering code with GLSL 4.0.

Project Experience

Surgical Simulation (Work) | Jun. 2012 - Current

1. *Import .stl/.obj format model and generate primitive adjacent information to process vascular meshes (fill holes) or achieve specific visual effect (shadow volume).*
2. *Simulate X-Ray imaging by utilizing multiple render targets and passes.*
3. *Use multiple viewports/contexts to achieve multiple views/monitors rendering.*
4. *Perform collision detection with OPCODE. Propose a novel method to model and simulate medical instrument behavior.*
5. *Solve the Navier-Stokes equation with ping-pong buffer on the GPU and visualize particles as fluid with point sprites.*

Delta3D Pool Game (Course Group) | Sep. 2011 - Jan. 2012

1. *Setup game scene by importing models and adding light sources in the Delta3D Editor.*
2. *Simulate the interaction between pools with ODE(Open Dynamics Engine).*

Software Renderer (Personal) | Dec. 2014 - Current

1. *A simple SIMD-optimized math library to do OpenGL-like transformation.*
2. *A simple rasterizer to do bresenham line drawing and scan-line triangle filling.*
3. *Texture mapping with perspective correction.*
4. *Phong lighting and depth test.*

Scholarships and Awards

Jan. 2008	Third Class of Outstanding Undergraduate Scholarship
Jan. 2013	Outstanding Postgraduate Scholarship
Dec. 2014	The First Prize in the 1st " UCAS Cup " Venture Contest
Jan. 2015	Outstanding Employee of The Year 2014

Computer Skills

Basic Knowledge:	*python,Linux, Ubuntu, LaTeX*
Intermediate Knowledge:	*C, C++, GLSL, CG Rendering Algorithms, Windows Programming, MFC*
	MS Visual Studio, MS Office(Word, PowerPoint,etc.)

Languages

English: CET6 *Fluent in technical paper writing and reading*

Papers and Patents

[1] **Wang HY**, *Wu JH, Wei MQ, Ma X. A robust and fast approach to simulating the behavior of guidewire in vascular interventional radiology. Computerized Medical Imaging and Graphics. 2015,40(2):160-169. (IF=1.496, JCR3)*.

[2] *Wu JH, Zhang P,* **Wang HY**, *Mi JP, Ma X, Hu QM. A virtual simulator for training essential skills in vascular interventional radiology. International Journal of Computer Assisted Radiology and Surgery. 2014, 9(Suppl 1):S44-S45. (IF=1.659, JCR2/3)*.

[3] *Wu JH,* **Wang HY** *, Zang P, Hu QM. A computer-based simulator for percutaneous coronary intervention. 7th International Conference on Bioinformatics and Biomedical Technology. Accepted.*

[4] *Wu JH,* **Wang HY** *, Ma X. An approach to simulating virtual medical instruments. Invention patent. Application No.:201410140075.X.*

[5] **Wang HY**, *Wu JH. An approach to processing data in virtual surgery. Invention patent. Application No.:201410841513.5.*

[6] *Wu JH,* **Wang HY**. *Interventional surgery planning and training equipment and related methods. Invention patent. Applied.*