

HAOYU WANG

PERSONAL DATA

PLACE AND DATE OF BIRTH: P.R.CHINA | 18 NOVEMBER 1988
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EDUCATION

SEP. 2011 - JUL. 2014 MASTER OF COMPUTER TECHNOLOGY IN **University of Chinese Academy of Sciences**
MAJOR: COMPUTER GRAPHICS
THESIS: *"Simulating the Motions of Guidewire and Catheter in Interventional Radiology"*
GPA: 3.35/4.0
SEP. 2007 - JUL. 2011 BACHELOR OF CONTROL SCIENCE AND ENGINEERING IN **Shandong University**
GPA: 3.31/4.0

WORK EXPERIENCE

JUL. 2014 - CURRENT RESEARCH ASSISTANT AT SHENZHEN INSTITUTES OF ADVANCED TECHNOLOGY, SHENZHEN
Participating 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, Model Process .

JUL. 2012- JUN. 2014 FORMAL STUDENT AT SHENZHEN INSTITUTES OF ADVANCED TECHNOLOGY, SHENZHEN
Presented a fast and robust approach to simulating the behavior of guidewire in vascular interventional radiology. Rewrited the low-level old fixed-function OpenGL rendering code with GLSL 4.0 to make good use of the highly programmable pipeline.

PROJECT EXPERIENCE

- Medical Simulation** JUN. 2012 - CURRENT
(WORK) *Process vascular meshes, fill holes, make C-Arm animation, etc.
Manage multiple viewport rendering, multiple monitor displaying, etc.
Simulate X-Ray/Endoscope/Angiography effect, implement Phong lighting, etc.
Perform collision detection, medical instrument behavior modeling/simulation, etc.*
- Fluid Simulation** APR. 2013 - CURRENT
(WORK) *Solve the Navier-Stokes equation with ping-pong buffer on the GPU.
Visualize particles as fluid using point sprites.*
- Delta3D Pool Game** SEP. 2011 - JAN. 2012
(COURSE GROUP) *Setup game scene by importing models and adding light sources in the Delta3D Editor
Simulate the interaction between pools with ODE(Open Dynamics Engine)*
- Linux-0.11 kernel** MAR. 2012 - JUN. 2012
(COURSE GROUP) *Expanded the maximum detectable memory of Linux-0.11 kernel to 4G.
Expanded the maximum thread number of Linux-0.11 kernel to 256.
Modified the memory management code of the kernel to expand the maximum manageable memory of Linux-0.11.*
- Software Renderer** DEC. 2014 - CURRENT
(PERSONAL) *Wrote a simple math library to do OpenGL-like transformation (from Model Space to Screen Space).
Wrote a simple rasterizer to do bresenham line drawing and scan-line triangle filling.
Implemented perspective correction interpolation and depth test.
Implemented Phong lighting
Working on clipping and tile-based triangle-rasterization...*

PAPER AND PATENT

- [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.

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

LANGUAGES

ENGLISH: FLUENT

CHINESE: MOTHERTONGUE

COMPUTER SKILLS

BASIC KNOWLEDGE: PYTHON, LINUX, UBUNTU, ~~LaTeX~~

INTERMEDIATE KNOWLEDGE: C, C++, MSVC, GLSL, MFC, WORD, POWERPOINT

INTERESTS AND ACTIVITIES

TECHNOLOGY, OPEN-SOURCE, PROGRAMMING

PARADOXES IN DECISION MAKING, PSYCHOANALYSIS, BEHAVIOURAL FINANCE

BASKETBALL, TRAVELLING