

HAOYU WANG

PERSONAL INFO.

PLACE AND DATE OF BIRTH: SHANDONG P.R.CHINA | 18 NOVEMBER 1988
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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**
GPA: 3.31/4.0

WORK EXPERIENCE

JUL. 2014 - CURRENT *Research Assistant* *Shenzhen Institutes of Advanced Technology*
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 .
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 JUN. 2012 - CURRENT
(WORK)
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. Use multiple viewports/contexts to achieve multiple views/monitors rendering.
3. Simulate X-Ray imaging by utilizing multiple render targets and passes.
4. Perform collision detection with OPCODE. Propose a novel method to model and simulate medical instrument behavior.
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).
Software Renderer DEC. 2014 - CURRENT
(PERSONAL)
A simple math library to do OpenGL-like transformation;
A simple rasterizer to do bresenham line drawing and scan-line triangle filling with perspective correction interpolation.
Phong lighting and depth test.

COMPUTER SKILLS

BASIC KNOWLEDGE: PYTHON, LINUX, UBUNTU, \LaTeX
INTERMEDIATE KNOWLEDGE: C, C++, MSVC, GLSL, MFC, WORD, POWERPOINT

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: MOTHER TONGUE

INTERESTS AND ACTIVITIES

TECHNOLOGY, OPEN-SOURCE, PROGRAMMING
PARADOXES IN DECISION MAKING, PSYCHOANALYSIS, BEHAVIOURAL FINANCE
BASKETBALL, TRAVELLING