

PENGBIN TANG

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PERSONAL PROFILE

and **Objective** Pengbin Tang is major in digital media technology at Shanghai University, P.R.China. His research interest is computer graphics, especially in physically-based simulations and virtual surgery.

EDUCATION

Shanghai University, Shanghai

- M.S. in Digital Media Technology

Sept. 2014 - Apr. 2017

Advised by Prof. Youdong Ding and Dr. Dongjin Huang

2017 Excellent graduate of Shanghai University

2014, 2015 and 2016 First-class academic scholarship

2015-2016 outstanding student of Shanghai university

2016 second-class of GuangHua scholarship

Cumulative average score: 88.14/100, Rank 1/5

- B.S. in Film & TV Arts and Technology(Digital Media Technology)

Sept. 2010 - Jul. 2014

2013 First-class Shanghai university extra-curricular science and technology works competition

2013 Unremitting self-improvement scholarship of Shanghai university

Obtained admission postgraduate qualifications with the first overall grade(1/59)

Cumulative GPA: 3.48/4.0, Rank: 2/59

- B.S. minor in Finance

Sept. 2011 - Jul. 2015

SKILLS

- Mathematical modeling and Numerical methods
- Proficiency in several programming languages, primarily with C/C++, but also with Matlab, Java and Python, and skillful at algorithm design and implementation
- Proficiency in CUDA, OpenGL, OpenCV etc. computer graphics and vision libraries
- Proficiency in hardware design and embedded development
- Strong communication skills, problem solving abilities and creativity
- Well research ability and paper written ability

PROJECTS AND EXPERIENCES

- **Natural Science Foundation of China(No.61402278) : Guidewire dynamics interaction research based on adaptive precision cosserat elastic rod**

Jan. 2015 - Dec. 2017

Main Participant

- Investigated and proposed the multi-fluid model, relevant angiography simulation algorithm and an add-on syringe force feedback hardware in minimally invasive surgery and written the research paper.
- Proposed a novel path planning method for minimally invasive diagnosis in medical images and written the research paper.

- **Shanghai Natural Science Foundation(No.14ZR1415800) : Research on flexible multi-body dynamic based guidewire and vascular interactive simulation**

Jul. 2014 - Jun. 2017

Main Participant

- Investigated and proposed the membrane physical model, fast collision handling algorithm for angioplasty simulation in minimally invasive surgery and written corresponding research paper.

- **Shanghai Committee of Science and Technology(No.14511108400) : China's precious historical video digital restoration platform** Sept. 2014 - Jun. 2016

Main Participant

- Responsible for the framework of restoration system.
- Restoration the missing frame of the video by the optical flow interpolation algorithm.
- **Presented and reported in international conference**
 - Given a paper speech of "Position Based Balloon Angioplasty" in the 15th ACM SIGGRAPH Conference on Virtual-Reality Continuum and Its Applications in Industry(VRCAI). Dec. 2016, Zhuhai
 - Made a paper speech of "Real-Time Simulation of Contrast Media Diffusion Based on GPU" in 2015 International Conference on Virtual Reality and Visualization(ICVRV). Oct. 2015, Xiamen
 - Given a paper speech of "Modeling and Simulation of Multi-frictional Interaction Between Guidewire and Vasculature" in 2015 International Conference on Image and Graphics(ICIG). Aug. 2015, Tianjin

PUBLICATIONS AND PATENTS

1. Position Based Balloon Angioplasty

Proceedings of the 15th ACM SIGGRAPH Conference on Virtual-Reality Continuum and Its Applications in Industry(VRCAI), Volume 1. ACM, 2016: 391-400.

Co-author: Wen Tang(Prof., University of Bournemouth,UK), Youdong Ding(Prof., Shanghai University), Dongjin Huang(Dr., Shanghai University) etc.

2. Development of 3D Interactive Virtual Angiography for Medical Training

Manuscript submitted to IEEE Transactions on Systems, Man, and Cybernetics: Systems

Co-author: Dongjin Huang, Youdong Ding, Wen Tang etc.

3. Computer-Assisted Path Planning for Minimally Invasive Vascular Surgery

Accepted by Chinese Journal of Electronics(CAD/Graphics 2017)

Co-author: Dongjin Huang, Yin Wang, Wen Tang etc.

5. Real-Time Simulation of Contrast Media Diffusion Based on GPU

2015 International Conference on Virtual Reality and Visualization (ICVRV), pp. 286-289, 2015.

Co-author: Dongjin Huang, Youdong Ding and Wen Tang etc.

6. Modeling and Simulation of Multi-frictional Interaction Between Guidewire and Vasculature

International Conference on Image and Graphics (ICIG), pp. 524-537, 2015.

Co-author: Dongjin Huang, Wen Tang, Youdong Ding etc.

4. Fast generating algorithm of interest roaming path based on freehand sketch

Journal of System Simulation, volume 28(3), pp. 577-583, 2016.

Co-author: Dongjin Huang and Youdong Ding

4. Personality-Oriented Recommendation and Virtual Display for 3D Home Design Based on Interaction History

Journal of Applied Sciences, volume 33, pp. 407-418, 2015.

Co-author: Dongjin Huang and Youdong Ding

7. The contrast media of virtual angiography diffusion process simulation method based on SPH

China Invention & Patent

Co-author: Dongjin Huang, Youdong Ding, Zhifeng Xie etc.

8. Real-time balloon angioplasty surgery process simulation method

China Invention & Patent

Co-author: Dongjin Huang, Zhifeng Xie and Youdong Ding