Qing Xia (夏 清)

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EDUCATION

Ph.D., Computer Application Technology	Sept. 2012 - Now
Advisor: Prof. Aimin Hao (Beihang) and Prof. Hong Qin (Stony Brook University)	Beijing, China
State Key Laboratory of Virtual Reality Technology and Systems	
School of Computer Science and Engineering, Beihang University	
Ph.D. (Honorary), Computer Science	Sept. 2012 - Now
School of Advanced Engineering, Beihang University	Beijing, China
An elite program, selected from candidates (around 25) in different majors, only 3 in CS	
B.S., Computer Science	Sept. 2008 - Jun. 2012
School of Computer Science and Engineering, Beihang University	Beijing, China
Recommended to the Ph.D. program without exams, top 10%	

PROFESSIONAL SKILLS

- Experienced in programing with C/C++, Matlab, Python, etc.
- Expert in computer graphics and OpenGL, GLSL, etc.
- Expert in geometry processing and shape analysis, especially in shape descriptors and deformations
- Familiar with parallel computing and skillful at using CUDA and OpenMP
- Familiar with machine learning techniques, such as SVM, decision trees, neural networks, etc.
- Experienced in implementing algorithms based on research papers and academic writing

AWARDS & HONORS

- Excellent New Student Award (Top 400 in NCEE in Sichuan)	Sept. 2008
- Outstanding Graduate Award (Outstanding at Beihang)	Jun. 2012
- National Graduate Scholarship (3rd place of doctoral students in SCSE at Beihang)	Oct. 2016
- Excellent Foundation of BUAA for PhD students (Only 3 in CS)	May 2017
- Outstanding Academic Paper Award (JCR Q1 paper)	Apr. 2018

PROGRAM EXPERIENCE

- Visual Model and Environment Construction and Its Dynamic Simulation	Jan. 2016 – now
PI: Prof. Hong Qin	
Duty: 3D model analysis and processing and support other multi-source data applications related 3D models	
- Data Modeling and Interactive Virtual Surgery of Digital Human Organs	Jan. 2012 - Dec. 2016
PI: Prof. Qinping Zhao and Prof. Aimin Hao	
Duty: Develop virtual surgery prototype system and other related techniques	

ACADEMIC ACTIVITIES

- Attended SIGGRAPH Asia in Shenzhen, China	Dec. 2014
- Made an oral presentation on PG in Beijing, China	Oct. 2015
- Made an oral presentation on VRST in Beijing, China	Nov. 2015
- Made an oral presentation (CAGD paper) on GMP in San Antonio, USA	Apr. 2016
- Made an oral presentation (PCI simulator) on SIGGRAPH Asia in Macau, China	Dec. 2016

MAIN PROJECTS

- **Real-time simulation and rendering of fluid**
  SPH, approximate surface as smoothed depth of particles, add sprays/foams according temporal-spatial analysis.

- **Percutaneous Coronary Intervention (PCI) virtual surgery simulator**
  A PCI simulator including tissue deformation, catheter and wire simulation, X-ray simulation, haptic feedback, etc.

- **Automatic extraction of 3D focal features**
  Predict focal features via connections between local features and the distances to focal features using random forest.

- **Fast 3D shape interpolation in modal space**
  Bring modal analysis into 3D shape interpolation to restrict solutions in modal space and improve efficiency a lot.

- **Spline fitting in shape space**
  Fit a hyper-curve in feature space to obtain a smooth sequence of 3D shape in Euclidean space.

- **Regional descriptor of 3D shape**
  We use a center point and a distance range to define a local region based on bi-harmonic distance, and describe this region by integration of global shape information, feature structure and 3D shape context.

PUBLICATIONS

Conference

- **Q. Xia**, S. Li[*], H. Qin and A. Hao. Modal Space Subdivision for Physically-plausible 4D Shape Sequence Completion from Sparse Samples. The 23rd Pacific Conference on Computer Graphics and Applications (Pacific Graphics 2015).
- L. Yang, S. Li[*], **Q. Xia**, A. Hao and H. Qin. A Novel Analysis-and-Simulation Approach for Detail Enhancement in FLIP Fluid Interaction. The 21st ACM Symposium on Virtual Reality Software and Technology (VRST 2015).
- Z. Xie, S. Li[*], **Q. Xia** and A. Hao. Kinetic simulation of cardiac motion with patient-specific coronary artery vessels attached for PCI simulator. International Conference on Virtual Reality and Visualization (ICVRV 2017). **Best Paper Award**.
- X. Tan, X. Peng, L. Liu and **Q. Xia**[*]. Automatic Human Body Feature Extraction and Size Measurement by Random Forest Regression Analysis of Geodesics Distance. International Conference on Virtual Reality and Visualization (ICVRV 2017).
- C. Chen, **Q. Xia**, S. Li[*], A. Hao and H. Qin. High-fidelity Compression of Dynamic Meshes with Fine Details using Piece-wise Manifold Harmonic Bases. Computer Graphics International (CGI 2018).

Journal

- S. Li, **Q. Xia**, A. Hao[*], H. Qin and Q. Zhao. Haptics-Equipped Interactive PCI Simulation for Patient-Specific Surgery Training and Rehearsing. SCIENCE CHINA Information Sciences, (2016) 59: 103101.
- **Q. Xia**, S. Li[*], H. Qin and A. Hao. Automatic Extraction of Generic Focal Features on 3D Shapes via Random Forest Regression Analysis of Geodesics-in-Heat. Computer Aided Geometric Design, 49: 31-43, December 2016.
- Y. Qiu, L. Yang, S. Li[*], **Q. Xia**, H. Qin and A. Hao. Novel Fluid Detail Enhancement based on Multi-Layer Depth Regression Analysis and FLIP Fluid Simulation. Computer Animation and Virtual Worlds, 2017, 28(5).
- S. Li, Z. Xie, **Q. Xia**, A. Hao[*] and H. Qin. Hybrid 4D Cardiovascular Modeling based on Patient-Specific Clinical Images for Real-time PCI Surgery Simulation. Graphical Models, to appear.
- X. Tan, X. Peng, L. Liu and **Q. Xia**[*]. Automatic Human Body Feature Extraction and Personal Size Measurement. Journal of Visual Languages and Computing, to appear.
- **Q. Xia**, C. Chen, S. Li[*], A. Hao and H. Qin. Fast 4D Shape Sequence Completion from Sparse Samples via Spline Fitting in Linear Rotation Invariant Space. Computer Aided Design. (Under review)
- **Q. Xia**, S. Li[*], H. Qin and A. Hao. A Regional Descriptor for Partial Shape Retrieval Integrated with Intra-structure of Features and 3D Shape Context. TVCG. (In preparation)