Yixin Zhuang

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PERSONAL PROFILE

Assistant researcher in the Department of NDSC of Information Engineering University. Primary research area is computer graphics, with particular interests in geometric modeling and processing.

EDUCATION

Washington University in St. Louis, St. Louis, MO, USA.

Visiting Student in Computer Graphics Lab, advised by Tao Ju. Sep 2014 – Sep 2012

Natinal University of Defense Technology, Changsha, Hunan, China.

Ph.D. in Computer Science and Technology. Mar 2011 – Jun 2015

- Thesis: Sketch-Based 3D Shape Creation and Analysis
- Adviser: Professor Yueshan Xiong
- Research areas: Sketch-Based Shape Creation, 3D Segmentation, Shape Analysis.

M.S. in Computer Science and Technology. Sep 2008 – Dec 2010

Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China.
B.S. in Computer Science and Technology Sep 2004 – Jun 2008

EMPLOYMENT

Assistant Researcher, Department of NDSC
Information Engineering University Jul 2015 – Present

ACTIVITY& EXPERIENCE

National University of Defense Technology, Changsha, Hunan, China
Research Assistant Mar 2015 – Jun 2015

- Created 3D geometry modeling and analysis software and lessons for undergraduate students.

Teaching Assistant Mar 2012 – Jun 2012

- Runed assignment and Q&A parts of Computer Graphics Course.

Washington University in St. Louis, St. Louis, MO, USA
Research Assistant Sep 2012 – Sep 2014

- Worked on several research projects and software implementations, see publication 1&2 and software development 1&2.

Shenzhen Institutes of Advanced Technology, Shenzhen, Guangdong, China
Research Assistant Dec 2014 – Jan 2015

- Worked on a research projects, about shape correspondence with large topological variance.

Conferences

Computer Graphics Summer School, at Zhejiang University, Hangzhou, Zhejiang, China Jul 2015

- Gave a short talk on how to do a Siggraph project, at student panel discussion.

PUBLICATIONS

JOURNALS & CONFERENCE

[1] Yixin Zhuang, Ming Zou, Tao Ju, Nathan Carr, "A General And Efficient Method For Finding Cycles In 3D Curve Networks," *ACM Transactions on Graphics(SIGGRAPH Asia 2013)*, vol. 32, no. 6, Dec 2013.

[2] Yixin Zhuang, Ming Zou, Tao Ju, Nathan Carr, "Anisotropic Geodesics for Live-wire Mesh Segmentation," *Computer Graphics Forum(Pacific Graphics 2014)*, vol. 33, no. 7, Oct 2014.

[3] Ibraheem Alhashim, Kai Xu, Yixin Zhuang, Junjie Cao, Patricio Simari, Hao Xhang, "Deformation-Driven Topology-Varying 3D Shape Correspondence," *ACM Transactions on Graphics(SIGGRAPH Asia 2015)*, Nov 2015.

RESEARCH PROJECTS

Finding Patches in 3D Curve Network

- A new algorithm for finding cycles that bound surface patches in a curve network, generating both manifold and non-manifold geometry with arbitrary genus.
- With an interactive user interface for fast adjustment on patch constraints and manifold properties of curves while the system automatically re-optimizes the solution.
- This work was presented in SIGGRAPH Asia 2013.

Interactive Live-wire mesh segmentation

- An interactive method for 3D mesh segmentation, which mimics the classical live-wire interaction for 2D image segmentation.
- Defines wires as geodesics in a new tensor-based anisotropic metric and improves upon previous metrics in stability and feature-awareness.
- Introduces a simple but effective mesh embedding approach that allows geodesic paths in an anisotropic path to be computed efficiently using existing algorithms designed for Euclidean geodesics.
- This work was presented in Pacific Graphics 2014.

Geometric and topological variance shape correspondence

- A deformation-driven method to produce a fine-grained correspondence between two 3D shapes that may differ in their geometry and topology substantially.
- The key ingredient of the correspondence scheme is a deformation energy that penalizes geometric distortion, encourages structure preservation, and simultaneously allows topology changes.
- Test on extensive sets of man-made models with rich geometric and topological variation and compare the results to state-of-the-art approaches.
- This work will be presented in SIGGRAPH Asia 2015.

SOFTWARE DEVELOPMENT

3D Live-wire, an interactive mesh segmentation/layout tool

- The tool is best at capture the salient feature of the mesh. Like 2D live-wire, user only need to place a sequence of 'clicks' on the mesh, and the tool will return pathes connect these 'clicks'.
- Developed by C++, OpenGL and Wxwidget. (First Developer)
- Demo and data can be downloaded here: http://www.cse.wustl.edu/žoum/projects/Livewire/Livewire_demo.zip, and source code will be available soon.

Cycle Discovery, a sketch-based shape creation tool

- The tool basically turns input 3D curve network into 3D polygon geometry, optionally, allows interactive manipulation by user's topological and geometric preference.
- Developed by C++, OpenGL and Wxwidget. (First Developer)
- Demo and data can be downloaded here: http://www.cse.wustl.edu/žoum/projects/CycleDisc/CycleDisc_Demo_Data.zip, and source code will be available soon.

AWARDS& HONORS

China Scholarship Council, Ministry of Education, China Sep 2012 – Sep 2014

Covers two years' cost at Washington University in St. Louis, including transportation costs, living expenses, health insurance and other financial support.

LANGUAGES& SKILLS

Languages:

- Chinese(native) and English(fluent).

Programming Languages:

- C++, Matlab, Mathematica, Python, Wxwidget, QT, OpenGL

Other Professional Skills/Tools:

- Html&CSS, Adobe Photoshop&Premiere, LaTeX, Git

INTERESTS

Digital photography, Basketball, Badminton.

REFERENCES

Tao Ju
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[*CV compiled on 2015-09-30*]