

# Lin Zheng

406 Russell Park APT 5  
Davis, CA 95616  
lzheng@ucdavis.edu  
(530) 219-7255  
webpage: <http://vis.cs.ucdavis.edu/~lzheng/>

## RESEARCH INTERESTS

Volume Visualization, Illustrative Visualization, Rendering, Perception Based Methods, GPU computing, User Interface Design

## TECHNICAL SKILLS

**Language** C/C++, OpenGL GLSL, Java, Python  
**Platform** Windows, Linux, OS X  
**Application** Photoshop CG Art

## EDUCATION

**PhD in Computer Science** - University of California, Davis, Current  
**Master of Science in International Economic Relations** - University of Konstanz, Germany, Dec 2008  
**Bechelor of Science in Computer Science** - Shanghai Jiao Tong University, China, June 2006  
(with Minor in **News and Media**)

## PUBLICATIONS

1. **Lin Zheng**, Abhijit J. Chaudhari, Ramsey Badawi, Kwan-Liu Ma. Using Global Illumination in Volume Visualization of Rheumatoid Arthritis CT Data. *IEEE Computer Graphics&Applications*, 34(6):16-23, 2014.
2. **Lin Zheng**, Carlos Correa, and Kwan-Liu Ma. Visibility Guided Multimodal Volume Visualization. *IEEE Bioinformatics and Biomedicine (BIBM)*, Page: 297-304 2013.
3. **Lin Zheng**, Yingcai Wu, and Kwan-Liu Ma. Perceptually Based Depth-Ordering Enhancement for Direct Volume Rendering. *IEEE Transactions on Visualization and Computer Graphics*, 19(3):446-459, 2013.
4. Thomas S.C. Ng, Holly Rochefort, Christopher Czaplicki, Pedro Teixeira, **Lin Zheng**, Lea Matsuoka, Jaques Van Dam, Sophocles P. Alexopoulos. Massive pancreatic pseudocyst with portal vein fistula: Case report and proposed treatment algorithm. *Pancreatology*, 15(1):88-93, 2015.
5. **Lin Zheng**, Yingcai Wu, and Kwan-Liu Ma. Relation-Aware Spreadsheets for Multimodal Volume Segmentation and Visualization. *MICCAI Workshop on Machine Learning in Medical Imaging*, Page: 92-99, 2010.

## SELECTED PROJECTS

**Perceived Lightness Enhancement** (Qt, C++, GLSL) Mar 2014 - Current  
Adjust lightness of the over shadowed regions during the 3D rendering based on visual psychology theories.

**Using Global Illumination in Rheumatoid Arthritis** (Qt, C++, GLSL) Mar 2013 - June 2014  
This study was designed for diagnosis process of Rheumatoid Arthritis. Global illumination is used to reveal the details of the bone structure. This method helped the doctors better perceive the holes which indicate the process of disease.

**Depth Perception Enhancement** (Qt, C++, GLSL) Jan 2011 - Dec 2012  
A theory in visual psychology was applied in semi-transparent volume visualization to enhance the depth-ordering perception. Without using additional visual cues, such as halos and shadows which may introduce redundant information, we adjusted the lightness and transparency in the shader while the perceived lightness and transparency stayed the same.

**Visibility-driven MultiModal Volume Visualization** (Qt, C++, GLSL) Sept 2009 - Dec 2010  
Graduate research work in multimodal volume visualization for medical datasets. My work focused on rendering 3D models with OpenGL Shading Language as well as transfer function design and user interface design. A GPU assistant method had been developed to introduce the local visibility histogram into Transfer Function design. With multiple rendering targets in the frame buffer object, we can utilize the visibility histogram in real time rendering without preprocessing.