

# 陈雪锦

<http://staff.ustc.edu.cn/~xjchen99/>

## 教育背景

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- 11/2008~08/2010 美国耶鲁大学, 计算机系  
博士后 **计算机图形学** 导师: Julie Dorsey 教授
- 09/2003 - 07/2008 中国科学技术大学, 电子科学与技术系  
博士 **计算机图形学** 导师: 沈向洋 教授
- 09/1999 - 07/2003 中国科学技术大学, 电子科学与技术系  
学士 **电子信息科学与技术**

## 研究兴趣

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研究领域主要是**计算机图形学**和**计算机视觉**。机器学习的算法用于基于**手绘草图**的几何建模系统中, 特别针对**建筑建模**和**植物建模**。**图像处理**也应用于交互设计系统以提供相关环境。

## 研究经历

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- 02/2009 ~08/2010 美国耶鲁大学, 计算机系, 计算机图形学实验室 *博士后*  
**以图像为参考环境的园林建筑的交互设计**
- 提出并详细定义项目目标和进展计划。
  - 提出了结合自动恢复三维场景和用户交互的方法, 以在三维空间中有效方便地组织较大的图像集, 为园林设计提供参考环境。
  - 设计并完成了结合图像和草图的交互系统, 对于复杂的园林环境和建筑, 使得用户可以有效地利用图像环境实现新的设计。
- 11/2008 - 09/2009 美国耶鲁大学, 计算机系, 计算机图形学实验室 *博士后*  
**用于增强折纸模型的形状感知的图案生成**
- 定义项目目标, 并协调项目组成员, 控制项目进展。
  - 应用几何特征曲率及简化度来控制图案的整体和局部密度来表示几何形状并掩盖简化折痕。
  - 设计并进行心理学实验, 验证不同的图案在加强折纸模的形状感知和掩盖折痕上的视觉作用。
- 10/2007 - 01/2008 美国微软总部, 虚拟地球研究组  
03/2007 - 09/2007 中国北京, 微软亚洲研究院 *研究实习生*  
**基于草图的树木建模**
- 研制出第一个基于简单草图的真实感树木建模系统。
  - 首次应用马尔可夫随机场对树枝间相互关系进行建模, 实现树木三维建模。
  - 设计了一个灵活易用的用户交互界面, 使得用户可以通过手绘草图获得具有真实树木复杂度和外观的树木模型。
- 05/2005 - 01/2007 中国北京, 微软亚洲研究院 *研究实习生*  
**手绘现实: 建筑设计草图的真实感解释**
- 研制出首个从手绘建筑设计草图生成真实感表现图的系统。
  - 使用概率统计模型解决对草图中基本几何, 细节几何和纹理贴图的真实感推断。
  - 设计了一个灵活易用的用户交互界面, 使设计师可以快速设计和修改几何模型及纹理, 并实时观看真实感解释模型和绘制效果图。
- 10/2004 - 01/2005 中国北京, 微软亚洲研究院 *研究实习生*  
**矢量动画在小型显示设备上的有效显示**
- 研发了基于矢量动画中物体的感官复杂度的再显示算法, 使得矢量动画在较低分辨率的屏幕上保持重要信息的可辨识度。



# Xuejin Chen

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## EDUCATION

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- 11/2008 – 08/2010 Dept. of Computer Science, Yale University New Haven, US  
Postdoctoral Associate Major: **Computer Graphics**  
Advisor: **Prof. Julie Dorsey**
- 09/2003 – 07/2008 Dept. of Electronic Science and Technology  
University of Science & Technology of China (USTC) Anhui  
Ph.D. Candidate Major: **Computer Graphics and Computer Vision**  
Advisor: **Prof. Heung-Yeung Shum**
- 09/1999 - 07/2003 Dept. of Electronic Science and Technology  
University of Science & Technology of China (USTC) Anhui  
Bachelor Major: **Electronic Information Science and Technology**

## RESEARCH INTERESTS

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My research interests are in **computer graphics, computer vision**. Specifically, I am interested in **sketch-based modeling** algorithms to achieve realistic rendering from freehand sketching. **Image processing** is also my interest while images provide the context for new design.

## RESEARCH EXPERIENCE

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- 02/2009 – 08/2010 Computer Graphics Group, Yale University *Postdoctoral Associate*  
**Interactive Design with Context for Landscape**
- Defined the goals for the new project related to user interaction with detailed photo datasets.
  - Proposed the algorithm to organize a large set of images effectively in 3D space combining automatic structure from motion algorithm and user interaction.
  - Implemented the user interface to arrange images interactively and combine images with strokes for landscape designing process.
- 11/2008 – 09/2009 Computer Graphics Group, Yale University *Postdoctoral Associate*  
**Printed Patterns for Enhanced Shape Perception of Papercraft Models**
- Defined the overall project goals and coordinated the process of the project.
  - Proposed to use the geometric attributes to control the global and local density, direction and size of the glyphs to enhance the shape perception and hiding the folds of papercraft models.
  - Conducted the user study to explore the effect that printed patterns have on the perception of papercraft model shapes.
- 10/2007 – 01/2008 Redmond WA, Virtual Earth  
03/2007 – 09/2007 Beijing China, Microsoft Research Asia *Research Intern*  
**Sketch-Based Tree Modeling**
- Developed a novel system for generating 3D models of complex trees from simple sketching.
  - Formulated new reconstruction algorithm using Markov random field to model branch interaction.
  - Designed an easy-to-use user-interface that allows the user to easily produce realistic-looking 3D tree models with complex branches and leaves.
- 05/2005 – 01/2007 Beijing China, Microsoft Research Asia *Research Intern*  
**Sketching Reality: Realistic Interpretation of Architectural Design**
- Developed a novel system for converting a user's freehand sketch to a realistically rendered architectural design.

- Formulated the framework to infer primitive geometries, detailed geometries and textures from freehand sketches.
  - Implemented a flexible user-interface that allows the user to easily sketch; modify the geometry model and texture; and view the realistic rendering of complex architectural models.
- 10/2004 – 01/2005      Beijing China, Microsoft Research Asia      *Research Intern*  
**Retargeting Vector Animation for Small Displays**
- Formulated new algorithm for retargeting vector animation when it is resized, especially for small displays. The recognizability of key objects is preserved by analyzing the perceptual complexity of objects.
  - Implemented an XML parser and the retargeting algorithm.
- 07/2004 – 09/2004      Beijing China, Microsoft Research Asia      *Research Intern*  
**Poisson Video Editing**
- Implemented a video editing algorithm by solving Poisson equation based on incomplete Cholesky conjugate gradient method for large sparse matrix.
  - Implemented the computation of different guide vector fields from the gradient of the source and target video to produce different merge effects of the videos.

## **PUBLICATIONS**

- **Xuejin Chen**, Yann Morvan, Yu He, Julie Dorsey and Holly Rushmeier, An Integrated Image and Sketching Environment for Archaeological Sites. Applications of Computer Vision in Archaeology (CVPR Workshop), San Francisco, June 14, 2010.
- Su Xue, **Xuejin Chen**, Julie Dorsey, Holly Rushmeier, Printed Pattern for Enhanced Shape Perception on Papercraft Models, Computer Graphics Forum (Proceedings of Eurographics 2010), Vol. 29, Issue 2 [[pdf](#)].
- **Xuejin Chen**, Boris Neubert, Ying-Qing Xu, Oliver Deussen, Sing Bing Kang, Sketch-based tree modeling using Markov random field, ACM Transaction on Graphics, Dec. 2008 (Siggraph Asia 2008) [[pdf](#)].
- **Xuejin Chen**, Sing Bing Kang, Ying-Qing Xu, Julie Dorsey, Heung-Yeung Shum, Sketching Reality: realistic interpretation of architectural design, ACM Transaction on Graphics 2008, Vol. 27, No. 2, Apr. 2008 [[pdf](#)].
- Vidya Setlur, **Xuejin Chen**, Ying-Qing Xu, Bruce Gooch, Retargeting vector animation for small displays, Proceedings of the 4th international conference on Mobile and Ubiquitous Multimedia, ACM Press, 2005, Vol. 154, pages 69-77 [[pdf](#)].

## **HONORS & AWARDS**

- **Best Intern** of Microsoft Research Asia, invited to **Bill Gates'** home for dinner, 2005
- **Microsoft Fellowship** (about **35** winners from the universities of **Pacific Asia Region**), 2005
- Excellent Graduate of USTC (**top 3%**), 2003
- GuangHua scholarship of USTC (**1/105**), 2002
- 2nd Class Scholarship for Excellent Students of USTC (**10%**), 2001
- Scholarship of Zhang Zongzhi of USTC (**1/105**), 2000

## **ACTIVITIES**

- Reviewer of Technical Papers in Siggraph 2009
- Paper Speaker in Eurographics 2009, Munich, Germany
- Paper Speaker in Siggraph Asia 2008, Singapore
- Paper Speaker in Siggraph 2008, Los Angeles, United States.
- Volunteer of International Conference on Computer Vision, 2005, Beijing, China