## Li-Yi Wei

## EDUCATION

Stanford University (Jun/1995 - Dec/2001)Ph.D. in Electrical Engineering - Computer Graphics, advised by Professor Marc Levoy.Other thesis committee members include Pat Hanrahan, Robert M. Gray, and David Heeger.

## WORK EXPERIENCE

**Researcher** Microsoft Jun/05 - Present Perform research, technology transfer, and advising students (with the Redmond and Beijing labs as well as several universities).

**3D Graphics Architect** NVIDIA Corporation Dec/01 - Jun/05 Perform research and development on programmable graphics processors, drivers, and applications. I have been working on a programmable vertex processor, a texture unit, and a miniature Open-GL driver. During my spare time, I have also authored a few patents and a tile-based texture mapping algorithm for game development.

Research AssistantStanford UniversityJun/96 - Dec/01Performed research mainly on new algorithms and applications of texture synthesis. Additional<br/>research areas included light field rendering and compression, shape from light field, video panorama,<br/>face detection, and color balancing for digital cameras.

Summer InternHewlett-Packard CompanyJul/98 - Sep/98Performed research in Halftone & Image Processing group of Imaging Technology Department in<br/>Hewlett-Packard research laboratory, Palo Alto.

Teaching AssistantStanford UniversityApr/96 - Jun/96Assisted teaching for Computer Architecture and Organization (EE 282).Provided lectures andanswered questions in review sessions which were broadcast through Stanford Instructional Televisionnetwork (SITN).

## PROFESSIONAL SERVICES

Committee Member Committee Member Committee Member SIGGRAPH Asia 2009, 2010
I3D 2008 - 2010
Pacific Graphics 2006 - 2010
CVPR 2004, 2005, 2008, ICCV 2007

## A System and Method of Generating White Noise for use in Graphics and Image Processing

Li-Yi Wei U.S. Patent Pending No. 10/956,954, filed September 30, 2004.

## Encoded High Dynamic Range Textures

Xi Wang, Peter-Pike Sloan, Li-Yi Wei, Xin Tong, and Baining Guo U.S. Patent Pending, filed 2006.

#### Three Dimensional Polygon Mesh Deformation Using Subspace Energy Projection

Jin Huang, Xiaohan Shi, Xinguo Liu, Kun Zhou, Li-Yi Wei, Baining Guo, and Heung-Yeung Shum U.S. Patent Pending, filed 2006.

## A Method and System for Processing Texture Samples with Programmable Filter Weights

Wei-Chao Chen and Li-Yi Wei U.S. Patent 7623136, granted November 24, 2009.

#### High Dynamic Range Image Hallucination

Li-Yi Wei, Kun Zhou, Baining Guo, and Heung-Yeung Shum U.S. Patent Pending, filed 2007.

## Nonlinear Beam Tracing on a GPU

Li-Yi Wei, Xu Yang, Ying-Qing Xu, and Baining Guo U.S. Patent Pending, filed 2007.

## Inverse Texture Synthesis

Li-Yi Wei, Kun Zhou, Baining Guo, and Heung-Yeung Shum U.S. Patent Pending, filed 2007.

## Motion Field Texture Synthesis

Chongyang Ma, Li-Yi Wei, Baining Guo, and Kun Zhou U.S. Patent Pending, filed 2009.

#### Multi-Class Poisson Disk Sampling

Li-Yi Wei U.S. Patent Pending, filed 2009.

## PUBLICATIONS

Multi-Class Blue Noise Sampling Li-Yi Wei SIGGRAPH 2010

Detail-Preserving Paint Modeling for 3D Brushes Nelson Chu, William Baxter, Li-Yi Wei, and Naga Govindaraju SIGGRAPH/EUROGRAPHICS Symposium on Non-Photorealistic Animation and Rendering 2010

Motion Field Texture Synthesis Chongyang Ma, Li-Yi Wei, Baining Guo, and Kun Zhou

SIGGRAPH Asia 2009

#### State of the Art in Example-based Texture Synthesis

Li-Yi Wei, Sylvain Lefebvre, Vivek Kwatra, and Greg Turk EUROGRAPHICS 2009 STAR

## Parallel Poisson Disk Sampling

Li-Yi Wei SIGGRAPH 2008

#### **Inverse Texture Synthesis**

Li-Yi Wei, Jianwei Han, Kun Zhou, Hujun Bao, Baining Guo, and Heung-Yeung Shum SIGGRAPH 2008

#### Parallel White Noise Generation on a GPU via Cryptographic Hash

Stanley Tzeng and Li-Yi Wei SIGGRAPH Symposium on Interactive 3D Graphics and Games 2008

#### Nonlinear Beam Tracing on a GPU

Li-Yi Wei, Baoquan Liu, Xu Yang, Ying-Qing Xu, Baining Guo, and Chongyang Ma Microsoft Research Technical Report MSR-TR-2007-168 December 2007

## High Dynamic Range Image Hallucination

Lvdi Wang, Li-Yi Wei, Kun Zhou, Baining Guo, and Heung-Yeung Shum EUROGRAPHICS Symposium on Rendering 2007

## Rendering from Compressed High Dynamic Range Textures on Programmable Graphics Hardware

Lvdi Wang, Xi Wang, Peter-Pike Sloan, Li-Yi Wei, Xin Tong, and Baining Guo SIGGRAPH Symposium on Interactive 3D Graphics and Games 2007

#### **Context-Aware Textures**

Jianye Lu, Athinodoros Georghiades, Andreas Glaser, Hongzhi Wu, Li-Yi Wei, Baining Guo, Julie Dorsey, and Holly Rushmeier ACM Transactions on Graphics, Volume 26, Issue 1 (January 2007)

#### Fast Example-based Surface Texture Synthesis via Discrete Optimization

Jianwei Han, Kun Zhou, Li-Yi Wei, Minmin Gong, Hujun Bao, Xinming Zhang, and Baining Guo The Visual Computer (Pacific Graphics 2006)

#### Visualizing Flow Fields by Perceptual Motion

Li-Yi Wei Microsoft Research Technical Report MSR-TR-2006-82 June 2006

## Multi-Layer Depth Peeling via Fragment Sort

Baoquan Liu, Li-Yi Wei, and Ying-Qing Xu Microsoft Research Technical Report MSR-TR-2006-81 June 2006

#### Real-time Multi-perspective Rendering on Graphics Hardware

Xianyou Hou, Li-Yi Wei, Heung-Yeung Shum, and Baining Guo EUROGRAPHICS Symposium on Rendering 2006 SIGGRAPH 2006 Sketches

#### Silhouette Texture

Hongzhi Wu, Li-Yi Wei, Xi Wang, and Baining Guo EUROGRAPHICS Symposium on Rendering 2006

#### Subspace Gradient Domain Mesh Deformation

Jin Huang, Xiaohan Shi, Xinguo Liu, Kun Zhou, Li-Yi Wei, Shanghua Teng, Hujun Bao, Baining Guo, and Heung-Yeung Shum

#### SIGGRAPH 2006

## **Tile-Based Texture Mapping**

Li-Yi Wei In GPU Gems II 2005

## **Tile-Based Texture Mapping on Graphics Hardware**

Li-Yi Wei SIGGRAPH/EUROGRAPHICS Conference on Graphics Hardware 2004 SIGGRAPH 2004 Sketches

#### **Texture Synthesis from Multiple Sources**

Li-Yi Wei SIGGRAPH 2003 Sketches and Applications

#### **Order-independent Texture Synthesis**

Li-Yi Wei and Marc Levoy Stanford Computer Science Department Technical Report 2002-01

## Texture Synthesis by Fixed Neighborhood Searching

Li-Yi Wei Stanford University Ph.D. Dissertation, December 2001

#### Texture Synthesis over Arbitrary Manifold Surfaces

Li-Yi Wei and Marc Levoy Computer Graphics (SIGGRAPH 2001 Proceedings)

#### Fast Texture Synthesis using Tree-structured Vector Quantization

Li-Yi Wei and Marc Levoy Computer Graphics (SIGGRAPH 2000 Proceedings)

# Deterministic Texture Analysis and Synthesis using Tree Structure Vector Quantization

Li-Yi Wei XII Brazilian Symposium on Computer Graphics and Image Processing, 1999

#### Shape from Light Field using Looming Field Analysis

Li-Yi Wei Unpublished Manuscript, 1998

## TEACHING

#### SIGGRAPH course on texture synthesis

Co-organized by Vivek Kwatra and Li-Yi Wei Half day course in SIGGRAPH 2007

#### Crash courses on texturing and GPU

Tsinghua University, Beijing October 2005

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