

# 3D Graphics Developer

## Yisheng Chen

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### Objective

A software developer position in which I can utilize my skills in analysis, problem solving, programming and research to produce amazing visual experience.

### Technical Background

#### Work Experience

Industrial Light and Magic, LucasArts (R&D Engineer), Electronic Arts Canada (Software Engineer, "NBA Live! 08/09"), Pixar Animation Studios (Technical Director, "Ratatouille")

#### Programming Languages

C++, C, Python, MEL, Shading Languages (Cg, HLSL, Renderman)

#### Software Packages

Microsoft Visual Studio, Eclipse, Matlab, Autodesk Maya & MotionBuilder, Adobe Photoshop & Premiere, Poser, PerForce

#### Graphics API

OpenGL, OpenCV, Maya API, Renderman SL

### Education

#### The Ohio State University, Columbus, OH

**Ph.D. Candidate**, Computer Science and Engineering, Expected Graduation: Oct 2009

Dissertation Topic: Human Activity Reconstruction from Monocular Video

**M.S.**, Computer Science and Engineering, Dec 2007

#### Zhejiang University, Hangzhou, China

**B.S.**, Computer Science and Engineering, June 2002

Thesis Title: motion capture based video animation

### Research and Development Experience

#### Industrial Light and Magic, San Francisco, CA

Research and Development, Nov 08 – Present, Jan 08 - Jun 08

- Replacing and augmenting current rigging and animations at LucasArts with tools from ILM production. (MEL, Python, C++)
- Developed enveloping/skinning tools, including adding new features, enhancing user interface, rewriting Python code by using C++ (10-30 times faster than before), optimizing existing C++ code (75%-200% faster than before), and fixing bugs. (C++, Python)
- Improved the user interface of the level editor for LucasArts. (C++, Python)
- Worked on various projects for creature development team, including creating new functionality in curve editor, implementing translator between Maya and an in-house animation tool. (C++)

#### The Ohio State University, Columbus, OH

Graduate Research Associate, Sep 03 - Present

- Implementing a prototype system for human motion recognition, reconstruction and synthesis from a single video stream using motion capture data. (C++, Matlab, Premiere, Poser, OpenGL)
- Analyzing the motion of dancers and athletes from video streams and reconstructing the motion

using a 3D synthetic model. (C++, Matlab, Premiere, Poser, OpenGL, and OpenCV)

### **Electronic Arts Canada, Vancouver, Canada**

Software Product Developer Co-op, Jun 07 - Sep 07

- Integrated new assets (camera flashes, cheerleaders and mascots) and implemented an effect (motion blur) in NBA Live on both Xbox 360 and PS 3. (C++, Renderware, HLSL)
- Maintained the pipeline of art works integration. (Python)

### **Pixar Animation Studios, Emeryville, CA**

Technical Director Intern, Jul 06 - Dec 06

- Implemented a light culling system for render speedup, resulting scene files after light culling render about 30% faster than before. (RenderMan, Python, C++)
- Optimized fog rendering by using shader profiling, resulting in new code produced at about 33% faster than the old one. (RenderMan, C++)
- Worked on global technology team, writing scripts and debugging for other departments including lighting, shading and animation. (Python, Perl)

### **Zhejiang University, Hangzhou, China**

Research Associate, Jul 01 - Jun 02

- Co-implemented a system of video-based animation for BVH data format files. (C++, OpenGL, Poser)
- Co-developed an interactive multi-agents system for retargeting a motion to compensate for geometric variations caused by both characters and environments. (C++, OpenGL)

### **Publications**

**Yisheng Chen**, Rick Parent, Raghu Machiraju, Jim Davis, "Human Activity Recognition for Synthesis", CVPR Workshop on Learning, Representation and Context for Human Sensing in Video, 2006.

**Yisheng Chen**, Jinho Lee, Rick Parent, Raghu Machiraju, "Markerless Monocular Motion Capture Using Image Features and Physical Constraints", Computer Graphics International, June 2005, pages 36-43.

### **Selected Accomplished Coursework**

#### **Digital Cinematography**

- Set lighting according to time of day, created procedure textures and shaders, and experimented with HDR rendering. (RenderMan shading language, Maya, Python)

#### **MEL & C++ API Programming**

- Implemented a path finding algorithm for crowd animation. (MEL, C++)

#### **Motion Capture Production**

· Created a 5-minute animation, by capturing, cleaning and editing motion data (a 4-member team). (MotionBuilder, Maya, Premiere)

#### **Form Visualization**

- Created several polygonal and NURBS models. (Maya)

#### **Expressive Motion**

- Created a 2-minute animation of a person taking a dive (5-member team). Responsible for producing the final kicking scene. (Maya, Premiere)

#### **Computer Vision and Video Surveillance**

- Developed a system for human head and body detection and tracking. (C++)

#### **Computer Animation Production**

- Created a 3-minute long animation of the tale of rabbit and turtle in a 5-member team. Developed the turtle model, forest model and several scenes. (Maya, Premiere)