

RYAN KAUTZMAN

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PROFESSIONAL EXPERIENCE

INDUSTRIAL LIGHT AND MAGIC | June 2000 - Present

RESEARCH AND DEVELOPMENT SOFTWARE ENGINEER | February 2002 - Present

Zeno Simulation Development

- Currently developing a comprehensive simulation engine for cloth, flesh, and rigid bodies in ILM's proprietary graphics package Zeno. Wrote extensive user documentation for deformable object simulations. Provided artist support for *War of the Worlds* and *The Island*.

Caricature Flesh Development

- Developed an entirely new flesh engine for use on Mr. Hyde in *Van Helsing* (see publications). Improved collision detection and culling routines. Developed a method for detecting and resolving pinching of geometrically colliding triangulated surfaces between volumetric collision bodies. Implemented various dynamics control mechanisms. Extended the engine to handle cloth. Implemented controls for bending springs, bending finite elements, and altitude springs.

Caricature Cloth Support and Development

- Maintained the cloth engine in ILM's proprietary graphics package Caricature, and provided artist support for *Star Wars: Episode II*, *Hulk*, and *Harry Potter and the Chamber of Secrets*.
- Implemented a rigid volumetric collision object based on level sets, and geometric repulsion bodies for *Pirates of the Caribbean: The Curse of the Black Pearl*.
- Developed a method of adaptively refining mesh collision resolution based on proximity to the zero iso-contour of level sets, implemented a new adaptive time stepping scheme, re-wrote and rehabilitated exception handling and threading, and oversaw development of new features in the cloth engine for *Harry Potter and the Prisoner of Azkaban*.
- Provided artist support for the bulk of the cloth work on *Van Helsing*. Rewrote significant portions of the cloth engine that greatly improved stability and usability, and resurrected legacy features for *Star Wars: Episode III*.

SCRIPT TOOLS PROGRAMMER | June 2000 - February 2002

Real Time Previsualization

- Developed a previsualization tool for use on *The Hulk* in collaboration with Wilson Tang, Dennis Muren, and Colin Brady. This tool allowed VFX and Animation supervisors to interactively cut together sequences, time lines, and the camera performance with director Ang Lee. This tool was also used on set by the director of photography to communicate with the camera crew, as well as by the construction crew to prepare for the requirements the camera performance would place on the set.

Pipeline Tool Support

- Maintained pipeline Python scripts related to Tape I/O and Render Support, as well as provided general tool support for all CG artists.

Timecard & M-Tools

- Developed a system for tracking production expenditures with a small programming team based on Java Servlets, JavaServer Pages, SQL, HTML, and JavaScript.

PUBLICATIONS

- *Jiggly Bits and Motion Retargeting: Bringing the Motion of Hyde to Life in 'Van Helsing' with Dynamics*, SIGGRAPH 2004, Sketches. Authors: Ryan Kautzman, Andrea Maiolo, Doug Griffin, and Andy Buecker
- *Leapin' Lizards: Anatomy of a Four-Ton Varactyl*, SIGGRAPH 2005, Sketches. Authors: Jason Smith, Aaron Ferguson, Juan Sanchez, Sunny Wei, Sang Jun Lee, Ryan Kautzman

FILM CREDITS

- *Van Helsing* - 2004 (Research and Development: ILM)
- *The Hulk* - 2003 (Software Engineer: Research and Development)
- *Planet of the Apes* - 2001 (Software Development: ILM)

EDUCATION

UNIVERSITY OF CALIFORNIA, DAVIS

Degree: Bachelor of Science in Computer Science | June 2000

Major: Computer Science

Emphasis: Computer Graphics and Scientific Visualization

Relevant Coursework: (see undergrad resume at my website for more information)

PROGRAMMING LANGUAGES, PLATFORMS, RELEVANT PROGRAMS & API's

C/C++, Java, JSP, JavaScript, Python, SQL, PHP, HTML, CSS, csh & bash scripting

Linux, Mac OS X, various flavors of UNIX, Windows 2000

Maya, Photoshop, Illustrator, Magic Draw UML, various office apps

Various integrated development environments, editors, revision control systems, profiling, and debugging tools, PhysBAM (Fedkiw et al, dynamics libraries), STL, Boost, OpenGL

References available upon request.