Michael Mandel

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OBJECTIVE

Obtain a fulltime position engineering cutting edge interactive entertainment software that presents meaningful creative and productive challenges

EDUCATION

Carnegie Mellon University – Pittsburgh, PA **M.S. in Computer Science**, Interactive CG/Animation focus Graduated 12/2004

Carnegie Mellon University – Pittsburgh, PA **B.S. in Computer Science**, Business Administration minor

Major GPA: 3.77/4.0

Cumulative GPA: 3.65/4.0 - Dean's List

Graduated 4/2003

WORK EXPERIENCE

Harmonix Music Systems / MTV

2/2009 - Present

Cambridge, MA

Software Engineer

- Creatively apply and develop technology to improve character performance, cinematography, and venue effects for the <u>Rock Band</u> games and other related titles
- Work closely with art and audio teams to evolve game authoring tools
- R&D work for future authoring and character technology, including new in-house motion capture studio

Electronic Arts

7/2007 - 11/2008

Los Angeles

Animation Engineer

- Developed advanced character animation system for creating semi-autonomous "digital actors" that express emotion
- Using the <u>Unreal 3 engine</u>, our team collaborated with Steven Spielberg on an action/adventure title to ship for Xbox 360, PS3, and PC platforms
- Combined several procedural and data-driven performance layers: breathing, posture, blinks, noise, eye darts, gaze/attention, body/facial animation, and IK
- Designed and implemented animation state machines and blend trees
- Worked closely with designers and animators on behaviors including jealousy, restlessness, flirting, hand-in-hand movement, combat and continuous speed locomotion
- Developed system to assemble performances using high level adjectives providing semantic meaning to objects, events and emotional context
- Worked closely on interface between AI, physics, pathfinding, and animation game systems

Apple Computer

5/2003 - 5/2007

Pittsburgh, PA

Software Engineer

- Lead development of technology for real-time 3D charts feature shipping in iWork product line
- Tasks included resolution/hardware independent tile-based rendering with OpenGL, real-time soft shadows, automatic shader code generation, multithreaded hardware independent anti-aliasing, layered animation system, and video hardware resource management
- Developed effective art pipeline tools with team of designers for specifying scene lighting and object material properties

Demiurge Studios

4/2005 - 4/2006

Boston, MA

Consultant

- Provided technical direction for next-gen action/adventure console game title using the *Unreal 3* engine technology
- Specified technology guidelines for an animation system utilizing advanced motion editing and physics-based techniques
- Wrote technical design documents during pre-production including animation transition diagrams and detailed overviews of common motion editing, blending, and simulation techniques

Microsoft Game Studios

5/2002 - 8/2002

Redmond, WA

Program Manager Intern

- Explored production side of game development by managing opening cinematic and beta program for <u>Rise of Nations</u> PC title
- Included realizing core vision of the game through a cinematic, contract negotiations, budget management, and design specification

<u>LucasArts Entertainment Company</u> 6/2001 – 8/2001 San Rafael, CA Programming Intern

- XBOX console development experience on published title Obi-wan
- Developed in-engine 3D directional sound authoring tools, light editor, level modification and source control management
- Engineered force feedback support and authoring tools for game engine and associated scripting language

SKILLS

Languages: C/C++, Objective-C, C#, UnrealScript, Java, GLSL/HLSL shaders, MEL Script, Intel x86 Assembly, Python, SQL, ASP, JSP + Servlets, Perl, Javascript **APIs:** iPhone SDK, WPF, OpenGL, Cocoa, STL, ODE Physics, Win32, Java 2.x API (including JDBC), FMod, DirectX, wxWindows, FLTK

OS: Windows XP, Apple Mac OSX , Unix/Linux

Software: MS Visual Studio, XCode, Expression Blend, SVN/CVS/Perforce, gcc/gdb, Motion Builder, 3DSMax, Maya, Interface Builder, Adobe Photoshop, Flash

Published Game Titles:

The Beatles Rockband. Harmonix 2009.

Rock Band 3. Harmonix 2010.

Dance Central, Harmonix 2010.

Personal Projects: iPhone game: MeowWalker, portable rhythm/puzzle experiments, physically-based character animation, skeletal animation system, motion capture editing, event-driven 2D compositing engine, cloth simulation, terrain renderer, ray tracer, console debugger

PUBLICATIONS

- G. Sukthankar, **M. Mandel**, and K. Sycara. <u>Creating Physically Embodied Agents Using Realistic Human Motion.</u> In *Simulation Gaming* Journal. March, 2008. SAGE Publications. http://sag.sagepub.com/cgi/content/abstract/39/1/64.
- M. Mandel and V. Zordan. <u>Beyond Ragdolls: Generating Versatile Human Behaviors</u> <u>by Combining Motion Capture and Controlled Physical Simulation.</u> In *Proceedings of Game Developer's Conference (GDC)*, **2005**.
- M. Mandel. <u>Adding Life to Ragdoll Simulation Using Feedback Control Systems.</u> **Game Programming Gems 5**. Charles River Media, 2005.
- M. Mandel. <u>Versatile and Interactive Virtual Humans: Hybrid use of Data-Driven and Dynamics-Based Motion Synthesis</u>. Master's thesis, Carnegie Mellon University, 2004.
- G. Sukthankar, **M.Mandel**, K. Sycara, and J. Hodgins. <u>Modeling Physical Capabilities of Humanoid Agents Using Motion Capture Data</u>. In *Proceedings of International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2004.
- G. Sukthankar, M.Mandel, K. Sycara, and J. Hodgins. Modeling Physical Variability

for Synthetic MOUT Agents. In Proceedings of Behavior Representation in Modeling and Simulation Conference (BRIMS), 2004.

HONORS

Honors: 2004 GameTech student scholarship winner, Recommended Reading Award for BRIMS 2004 conference paper, 5th Year Scholars Program at Carnegie Mellon, Yo-Yo Ma master class participant