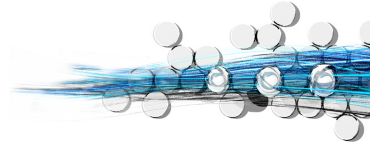


RAMA C. HOETZLEIN
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GRAPHICS R&D ENGINEER



RESEARCH INTERESTS

Rama Hoetzlein is a computer scientist and knowledge engineer working in the areas of artificial intelligence and graphics. I develop physical simulations, procedural and crowd animations, and scientific visualizations that take advantage of GPU-based computation, parallel algorithms and software patterns which combine offline and interactive rendering.

EDUCATION

- 2010 **Ph.D, Media Arts and Technology**, University of California Santa Barbara
Imagination in Media Arts: Technological Constraints and Creative Freedom
- 2007 **MS, Media Arts and Technology**, University of California Santa Barbara
The Organization of Human Knowledge: Systems for Interdisciplinary Research
- 2001 **BA, Computer Science**, Cornell University. *Computer Graphics*
- 2001 **BFA, Fine Arts**, Cornell University. *Robotic Sculpture*

PROFESSIONAL EXPERIENCE

- 2010 **Department of Architecture and Media Technology** *Assistant Professor*
Aalborg University at Copenhagen, Denmark. Medialogy Program.
Developed a research program and curriculum in computer graphics, with topics and supervision of students in motion capture, animation and modeling.
- 2009 **DreamWorks Animation** *R&D Rendering Intern*
Contact: Bruce Tartaglia (Senior Rendering Engineer)
Worked with the rendering team on improved material surfacing using MetaSL. Developed new shaders and render testing in collaboration with Mental Images.
- 2008-2012 **Transliterations**, Department of English *Project Scientist, Co-Director*
Contact: Prof. Alan Liu, ayliu@english.ucsb.edu, U. of California Santa Barbara.
Co-Director on a National Endowment for the Humanities (NEH) grant to develop a research-oriented social environment, RoSE, a novel social networking site for contemporary and historic persons in literature.
- 2007 **Interactive Digital Multimedia**, NSF IGERT *Research Fellow*
Contact: Prof. Tobias Hollerer, holl@cs.ucsb.edu, U. of California Santa Barbara
Developed graphics solutions for real-time cluster rendering on tiled displays for the Allosphere, a 30 ft. immersive display at UC Santa Barbara featured in a TED Talk by Joann Kuchera-Morin (Director).

- 2005 **George Legrady Studio** *Production Lead*
 Seattle Library Visualization Project,
 Contact: Prof. George Legrady, legrady@arts.ucsb.edu
 Ten year project for real-time visualization of library circulation materials, displayed
 on six, 42" networked displays, using custom software. Still running.
- 2001- **Game Design Initiative at Cornell University** *Co-founder, Lecturer*
 2004 Contact: Professor David Schwartz, dis@mail.rit.edu, (Rochester Inst. Tech)
 Led advanced courses, created a new curriculum, and developed GameX, an
 instructional game engine designed to foster collaboration between students in
 engineering and the arts.

PUBLICATIONS

- 2012 Hoetzlein, "Graphics Performance in Rich Internet Applications",
IEEE Computer Graphics & Applications. September 2012.
- 2012 Hoetzlein, "Visual Communication in Times of Crisis: The Fukushima Nuclear
 Accident", *Leonardo Journal of Arts, Science and Technology*. April 2012.
- 2012 Eric Chuk, Rama Hoetzlein, David Kim, Julia Panko. "Creating Socially Networked
 Knowledge through Interdisciplinary Collaboration" *Arts & Humanities in Higher
 Education: An international journal of theory, research and practice*, Vol 11,
 No. 1-2. Feb/April 2012.
- 2009 Hoetzlein. "Subjective Media: A Historic Context for New Media in Art",
Fourth International Conference on the Arts in Society. Venice, Italy. 2009
- 2009 Hoetzlein. "Alternatives to Author-centric Knowledge Organization",
Implementing New Knowledge Environments (INKE 2009). Victoria, Canada.
- 2009 Hoetzlein and T. Höllerer, "Interactive Water Streams with Sphere
 Scan Conversion". *ACM Interactive Graphics and Games (i3D)* Feb, 2009. Boston.
- 2009 Hoetzlein, "Real-Time Water Dynamics: Practical Rendering of Fluids"
Game Developers Conference (GDC) 2009. San Francisco, CA. March 2009
- 2009 Hoetzlein and D. Adderton, "MINT/VXF: A High-Performance Computing
 Framework for Interactive Multimedia." *Future of Media Arts, Science and Technology
 Workshop (MAST)* January 2009. UCSB.
- 2008 M. Turk, T.Höllerer, S.Arisona, J.Kuchera-Morin, C. Coffin, R. Hoetzlein, et al
 "Creative Collaborative Exploration in Multiple Environments"
Association for the Advancement of Artificial Intelligence, 2008 Symposium
- 2007 Hoetzlein. "Quanta: A Platform for Multiple Visualizations of Human Knowledge".
 University of California Santa Barbara. First lecture in the *Transliterations
 Paradigm Lecture Series*.

- 2007 Hoetzlein. "The Organization of Human Knowledge: Systems for Interdisciplinary Research". *Master's Thesis*. U. of California Santa Barbara
- 2005 Hoetzlein and D. Schwartz, "GameX: A Platform for Incremental Instruction in Computer Graphics and Game Design." *ACM SIGGRAPH Educators Program 2005*.
- 2003 Hoetzlein and D. Schwartz, "Computer Game Design as a Tool for Interdisciplinary Education", *American Society for Engineering Education*

SELECTED SOFTWARE PROJECTS

- 2010 **Luna:** A High Level Language for Procedural Modeling
Interactive, visual dataflow language, renderer and GUI system. C++/OpenGL
- 2008-2009- **RoSE:** Research-Oriented Social Environment
Online social network. Currently in use at UCSB. Ruby on Rails, Flex/Flash
- 2007 **MINT/VFX:** Cluster Rendering on Tiled Display
Network-based real-time renderer using multiple GPUs. C++, Winsock, OpenGL
- 2008 **Fluids v.1** - A Fast, Open Source Fluid Simulator for CPU & GPU
Distributed with Bullet physics. International use. NVIDIA CUDA
- 2005-2007 **Quanta:** Hypergraph Database and Visualization system. C++, OpenGL
Novel, non-relational database system with interactive visualization.

ALGORITHMS IMPLEMENTED

<i>Geometric</i>	<i>Rendering</i>	<i>Other</i>
Geomipmapped Terrain	Deferred Shading	Frustum Culling
Bézier curves & surfaces	Percentage-Closer Shadows	GUI interfaces
Procedural modeling	Depth of Field	SPH Fluids
Structural Level-of-detail	Raytracing	Interpreters &
Volumetric modeling	MetaSL / Cg Shaders	Graph Compilers

ART EXHIBITIONS

- 2011 **Global Units.** Live procedural modeling. Copenhagen, Denmark
- 2010 **The Bones of Maria.** Generative organic art. Torino, Italy
- 2009 **Presence.** Davidson Central Library, UCSB Santa Barbara, CA
- 2008 **Social Evolution.** Version Bêta. Genève, Switzerland
- 2007 **Lifecycles.** 2nd International Arts & Science Exhibition Beijing, China
- 2007 **Intelligent Things.** Machine Project, DorkBot So. Cal. Los Angeles, CA
- 2001 **Creatures: Mechanical and Robotic Sculpture.** Ithaca, NY