

## RAMA HOETZLEIN

DIGITAL MEDIA ARTIST / COMPUTER SCIENTIST

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### SHORT BIOGRAPHY

Rama Höetzlein is a media artist and computer scientist working with simulations and knowledge systems. My work explores the design, prototyping, interface and ethics of technology through generative art and simulation.

### EDUCATION

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

### PROFESSIONAL EXPERIENCE

- 2019- *Assistant Professor, Florida Gulf Coast University*  
Digital Media Design, School of Entrepreneurship  
Taught courses and new topics in interactive design, 3D animation and media theory. Mentoring seniors toward graduation in design. Research focused on motion capture, physically-based animation, ecology and use of open tools in the classroom. <http://fgcu.edu/digitalmedia>
- 2013-2018 *Senior Software Engineer, Nvidia Corporation*  
Lead architect for NVIDIA® GVDB Voxels, a framework for computation, simulation and rendering of volumetric models with applications to motion pictures, additive manufacturing and scientific visualization. Published scientific and visual results. Guided research collaborations with SpaceX, HP Labs and Dreamworks Animation. <http://developer.nvidia.com/gvdb>
- 2015 *Media Artist in VR, High Fidelity, Inc.*  
Invited as a conceptual media artist to imagine new interactions in virtual reality with Philip Rosedale, Founder of Second Life. Developed a theoretical model and novel VR experiences entitled *Visions of Virtuality*.
- 2011 *Assistant Professor, Medialogy, Department of Art and Architecture*  
Aalborg University, Copenhagen  
Developed a research program and curriculum in computer graphics with topics and supervision of masters' students in motion capture, animation and modeling.
- 2010-2012 *Co-Director and Project Scientist, Transliterations, Department of English*  
University of California Santa Barbara, with Professor Alan Liu  
Directed a team of graduate engineers in collaboration with literary scholars to build the Research-oriented Social Environment, RoSE, a social network of historic and contemporary persons in the Digital Humanities. <http://transliterations.english.ucsb.edu/>

- 2009 **R&D Rendering Internship, Dreamworks Animation**  
Worked with the R&D Rendering team on new approaches to material rendering in animated motion pictures. Shot testing on *How to Train Your Dragon*. Render testing with Mental Images.
- 2005 **Production Lead, Making Visible the Invisible, George Legrady Studio**  
University of California Santa Barbara  
Lead producer and co-creator of *Making Visible the Invisible*, the longest continually running interactive media arts project, a ten year project for real-time visualization of library circulation materials at the Seattle Public Library.
- 2001-2004 **Co-founder and Lecturer, Game Design Initiative, Cornell University**  
Worked with David Schwartz (RIT, School of Games and Media) to establish the Game Design Initiative at Cornell University (GDIAC). Introduced the first courses in game design at Cornell with hands-on curricula for collaboration between students in computer science and fine arts.

## SELECTED PUBLICATIONS

- 2022 Hoetzlein, R. Knowledge Cultures in New Media Art  
*ISEA 2022 International Symposium on Electronic Art*, Barcelona, Spain, June 14, 2022
- 2022 Hoetzlein, R. A Procedural Model for Diverse Tree Species  
*Procedural Content Generation (PCG) Workshop*, Athens, Greece, Sept 5, 2022
- 2022 J. Adams, A. Humphrey, R. Hoetzlein. Developing Techniques for Rigging and Motion Capture to Simplify 3D Animation. Published in *FGCU Aquila 2022*, Presented at *FGCU Research Day*.
- 2020 Hoetzlein, R. Natural Structures through the Convergence of Particles and Shapes.  
*Proceedings of the XXII Generative Art Conference, GA2020*. Milan, Italy.
- 2019 Legrady, G. and Hoetzlein, R. Making Visible the Invisible: A Data-driven Media Artwork, in Continuous Operation for 15 years. *ACM SIGGRAPH 2019 Art Papers*
- 2018 Wu, K., Truong N., Yuksel, C. and Hoetzlein, R. Fast Fluid Simulation with Sparse Volumes on the GPU. *Eurographics 2018*. Delft, Netherlands.
- 2016 Hoetzlein, R. Raytracing Scientific Data in NVIDIA OptiX with GVDB Sparse Volumes  
*GPU Technology Conference (GTC)*. March 2016, Santa Clara
- 2016 Hoetzlein, R. GVDB: Raytracing Sparse Voxel Database Structures on the GPU.  
*High Performance Graphics (HPG)*, June 2016. Dublin, Ireland.
- 2012 Hoetzlein, R. 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. *Art & Humanities in Higher Education*.
- 2011 Hoetzlein, R. Imagination in Media Arts: Technological Constraints and Creative Freedom.  
*Ph.D Dissertation*. University of California Santa Barbara.
- 2009 Hoetzlein, R. Alternatives to Author-centric Knowledge Organization.  
*Implementing New Knowledge Environments (INKE)*. Victoria, Canada. Oct 2009.
- 2007 Hoetzlein, R. The Organization of Human Knowledge: Systems for Interdisciplinary Research  
*Master's Thesis*. University of California Santa Barbara.

## TOOLS & SOFTWARE

Adobe Creative Suite  
Blender and Maya

Adobe XD  
Wordpress

Processing.org  
Arduino

Pollinations.ai  
C/C++/OpenGL

## TEACHING EXPERIENCE

2022 Digital Media Workshop and Senior Project  
2021 3D Animation I and II  
2020 Professional Practices in Design  
2019 Interactive Design I and II  
2019 Digital Media Design I and II  
2011 Advanced Animation and Motion Capture  
2011 Computer Graphics and Digital Scenography  
2008 Introduction to Computer Graphics  
2006 Introduction to Mechanical Engineering  
2005 Visual Art Literacy  
2004 Advanced Topics in Game Design (GDIAC)  
2003 First official course in Game Design (GDIAC)

Assistant Professor, FGCU  
Assistant Professor, FGCU  
Assistant Professor, FGCU  
Assistant Professor, FGCU  
Assistant Professor, FGCU  
Assistant Professor, Aalborg Univ.  
Assistant Professor, Aalborg Univ.  
Teaching Assistant, UCSB  
Teaching Assistant, UCSB  
Teaching Assistant, UCSB  
Co-founder, Cornell University  
Co-founder, Cornell University

## AWARDS & PROFESSIONAL ACTIVITIES

2014 Guest Speaker. KnowViz Workshop  
2009 Participant. Digital Humanities Institute  
2007 Participant. Text Encoding Seminar  
2006 Guest Speaker  
2006 Guest Speaker  
2006 Participant. Digital Humanities Summer Institute  
2006 Arts Exhibitions Coordinator. ACM Multimedia 2006  
2006 NSF Interactive Multimedia IGERT Fellowship  
2004 Recognition Award for Teaching (GDIAC)  
2001 Outstanding Achievement in Contemporary Sculpture

University of California San Diego  
University of Victoria, Canada  
Univ. of California Santa Barbara  
Moorpark College Multimedia  
Digital Arts Research Network  
University of Victoria, Canada  
Univ. of California Santa Barbara  
Univ. of California Santa Barbara  
Cornell University  
International Sculpture Center

## SELECTED ART EXHIBITIONS

2019 *New Sentient Art*, FM Oakland  
2017 *Tinker*, LUMA Binghamton Projection Arts Festival  
2015 *Visions of Virtuality*, High Fidelity, Inc.  
2011 *EcoPlayer*, Interactive experience of animal sounds.  
2011 *Global Units*. Procedural modeling for live recorded music  
2010 *The Bones of Maria*. Generative organic art. The Cultor, IT  
2009 *Presence*. Immersive 360° photography  
2008 *Social Evolution*. Crowd simulation. Version Bêta  
2007 *Lifecycles*. 2<sup>nd</sup> International Arts & Science Exhibition  
2007 *Intelligent Things*. Machine Project, DorkBot So. Cal.  
2005 *Timewave*. Ecological digital microscope. Gallery 1434  
2004 *Collective Morphology*. Collaborative generative form.  
2001 *Creatures*, Mechanical and Robotic Sculpture.  
1999 *Gigaspace*, Crowd interaction with a virtual pixelated dog

Oakland, CA  
Binghamton, NY  
San Francisco, CA  
Copenhagen, Denmark  
Copenhagen, Denmark  
Torino, Italy  
Santa Barbara, CA  
Genève, Switzerland  
Beijing, China  
Los Angeles, CA  
Santa Barbara, CA  
Santa Barbara, CA  
Ithaca, NY  
Ithaca, NY

## VIDEOS AND WORKS ONLINE

[www.ramakar.com](http://www.ramakar.com)