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# Jeffrey Ventrella

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Massachusetts Institute of Technology ( <a href="#">The Media Lab</a> )	MS	Media Arts and Sciences	1994
Syracuse University	MFA	Computer Graphics/Video	1987
Virginia Commonwealth University	BFA	Art Education/Art History	1984

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<a href="http://www.jjventrella.com">http://www.jjventrella.com</a>	About me
<a href="https://ventrellathing.wordpress.com/">https://ventrellathing.wordpress.com/</a>	My blog
<a href="http://www.wiggleplanet.com">http://www.wiggleplanet.com</a>	Self-animated characters for augmented reality
<a href="http://www.ventrella.com/art/">http://www.ventrella.com/art/</a>	Software Art Portfolio
<a href="http://www.ventrella.com/EarthDay2017/">http://www.ventrella.com/EarthDay2017/</a>	Earth Day 2017
<a href="http://www.virtualbodyLanguage.com">http://www.virtualbodyLanguage.com</a>	A book about nonverbal expression and avatars
<a href="http://www.brainfillingcurves.com/">http://www.brainfillingcurves.com/</a>	A visual math book
<a href="http://www.swimbots.com/">http://www.swimbots.com/</a>	An artificial life game
<a href="http://www.cloctal.com">http://www.cloctal.com</a>	Visualizing fractal time
<a href="http://www.divisorplot.com/">http://www.divisorplot.com/</a>	Visual treatment of composite number theory

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(Currently seeking contract work in AR, VR, real-time interactive, UX, or R&D, for innovative companies)

<b><a href="#">Leap Motion</a></b> , San Francisco, CA <b>Designer/Engineer (Contract)</b> Working with engineers to implement the <a href="#">Clusters</a> algorithm in VR	4/17 – present
<b>MeshOS</b> , Sausalito, CA <b>Designer/Engineer (Contract)</b>	2/17 – 8/17
<b><a href="#">Wiggle Planet, LLC</a></b> , Petaluma, CA <b>Founder</b> Developing kid-friendly mobile apps featuring self-animated characters And artificial life with geo-located augmented reality	10/12 – present
<b><a href="#">Virtuocity VR, Inc.</a></b> London, UK <b>Developer/Designer (Contract)</b> R&D in a virtual reality application using the Samsung GearVR and Unity	8/16 – 12/16
<b><a href="#">Pillantas, Inc.</a></b> San Francisco, CA <b>Developer (Contract)</b> R&D using the Microsoft HoloLens; developed prototypes in Unity/Windows 10 for a highly-innovative augmented reality interface	6/16 – 8/16

<p><b><u>Binary Simplex</u></b> Washington, DC  <b>Developer (Contract)</b>  Implementing cross-platform (iOS and Windows) rendering tools for patented optimized 3D mesh generation based on DICOM files.</p>	1/15 – 12/15
<p><b><u>For Goodnes Sake</u></b> San Francisco, CA  <b>Designer/Developer (Contract)</b>  Design and implementation of javascript-based simulation components for female-oriented sexuality education app</p>	10/14 – 1/15
<p><b><u>High Fidelity</u></b> San Francisco, CA  <b>Developer (Contract)</b>  Helped build-out core avatar systems, user interactions, particle systems, camera behaviors, and other virtual world features</p>	4/13 – 8/13
<p><b><u>Visual Music Systems</u></b>, Boston, MA  <b>Principle Developer</b>  Developed high-performance, realtime computer animation for a performative artform incorporating immersive displays and gestural input. Particle systems, 3D math/physics, and parameter-based control</p>	6/11 – 9/12
<p><b><u>The Internet Archive</u></b> San Francisco, CA  <b>Designer/Engineer (Contract)</b>  Worked closely with internet visionary <a href="#">Ted Nelson</a> on implementation of ZigZag for the <a href="#">Open Library</a>. Project management, JavaScript/HTML5/CSS development</p>	10/10 – 11/10
<p><b><u>Emota.net</u></b> Menlo Park, CA  <b>Designer/Engineer (Contract)</b>  NSF-funded start-up. Consulted on design; development: interactions and interfaces for social connectedness. Developed JavaScript code for web and iPad</p>	7/09 – 9/10
<p><b><u>School of Interactive Arts and Technology</u></b>, SFU, Vancouver, BC  <b>Research Scholar:</b> nonverbal communication in virtual worlds.  Taught Advanced Game Design class to 4<sup>th</sup>-year students.  Wrote the book: <i>Virtual Body Language</i>: <a href="http://www.virtualbodylanguage.com">www.virtualbodylanguage.com</a></p>	9/09 – 8/10
<p><b><u>The Internet Archive</u></b> San Francisco, CA  <b>Developer/Designer:</b> built home page for <a href="http://NASAIImages.org">NASAIImages.org</a>; designed and implemented the 'create account' page and other pages. Helped design the Open Library Bookreader using JavaScript/CSS.</p>	3/08 – 7/09
<p><b><u>Centre for Digital Media</u></b> Vancouver, BC  <b>Faculty:</b> Developed curriculum and taught <a href="#">Building Virtual Worlds</a>, advised students on industry-funded projects</p>	8/08 – 12/08
<p><b><u>Millions Of Us</u></b> Sausalito, CA  <b>Consultant:</b> Developed avatar-customization tool, general consulting</p>	1/08 – 2/08
<p><b><u>SheZoom</u></b> New York, NY  <b>Animator:</b> designed and implemented <a href="#">Shemoticons</a> in Flash</p>	12/07 – 1/08

<p><b><u>Linden Lab (Second Life)</u></b> San Francisco, CA</p> <p><b>Senior Developer:</b> Developed software and designs for Second Life, invented Flexi Prims, <a href="#">FollowCam</a>, vehicle physics, camera behavior, <a href="#">avatar customization</a>, and user interfaces</p>	1/05 – 11/07
<p><b><u>Adobe Systems</u></b> San Jose, CA</p> <p><b>Programmer:</b> Worked with the <a href="#">Acrobat 3D</a> team (originally Adobe Atmosphere), developed JavaScript for direct manipulation, modeling, and interactive behavior of 3D content</p>	2/04 – 7/05
<p><b><u>There, Inc</u></b> Menlo Park, CA</p> <p><b>Co-Founder and Principle Inventor of <a href="#">There.com</a></b></p> <p>Developed prototype with Will Harvey April 1997 to April 1998; co-founded company with Will on April 1998. Invention of technologies and designs for avatars, vehicle physics and navigation, camera behavior, sound design, animal behaviors, and real-time voice-activated speech animation. Principal author on first <a href="#">patent</a> granted to the company.</p>	4/97 – 1/04
<p><b><u>Rocket Science Games, Inc.</u></b> San Francisco, CA</p> <p><b>Designer/Engineer:</b> Designed and prototyped software games. Worked with author <a href="#">Michael Crichton</a> on a game prototype. Designed <a href="#">Darwin Pond</a></p>	7/95 – 4/97
<p><b><u>ABSOLUT Vodka</u></b> (via <a href="#">TBWA/Chiat Day</a> NY, NY)</p> <p><b>Artist/Programmer:</b> Developed code to generate stylized genetic algorithm-based variations of the <a href="#">Absolut Vodka Bottle</a> using interactive evolution. Published online as promotion for the "Absolut Kelly" web site, Consulted with <a href="#">Kevin Kelly</a> on the site</p>	2/96 – 5/96
<p><b><u>Protozoa</u></b> San Francisco, CA</p> <p><b>Software Engineer:</b> Worked with <a href="#">Brad deGraf</a>. Developed interactive tool to generate 3D tree models for a computer game.</p>	3/95 – 3/95
<p><b>Tufts University, <u>Experimental College</u></b>, Medford, MA</p> <p><b>Instructor:</b> Designed and taught course: "Populating Virtual Reality". (Artificial Life: cultural implications, technical aspects).</p>	1/95 – 3/95
<p><b><u>Papyrus Design Group</u></b>, Somerville, MA</p> <p><b>Designer:</b> Developed script and consulted on animated characters for proposed CD-ROM-based interactive comedy game.</p>	12/94 – 3/95
<p><b><u>Do While</u></b> Studio, Boston, MA</p> <p><b>Artist:</b> Developed interactive animations; worked with artist Jen Hall</p>	9/94 – 4/95
<p><b><u>Cinergi Productions</u></b> Lenox, MA</p> <p><b>Artist/Programmer:</b> Feature Film Special Effects Animator, (Sylvester Stallone Film, <a href="#">Judge Dredd</a>) Programmed custom animation effects on SGI IRIS; collaborated artists.</p>	7/94 – 8/94
<p><b><u>Visible Language Workshop, MIT Media Lab</u></b>, Cambridge, MA</p> <p><b>Research Assistant:</b> multimedia interfaces, AI, information design, and animation.</p>	9/92 – 3/94

**University of California, San Diego, Visual Arts Dept.** San Diego, CA 1/92 – 6/92  
**Instructor:** Worked under [Harold Cohen](#), developed curricula and taught courses in Graphics Programming, 3D CAD, and C Language

**Syracuse University** 7/87 – 12/91  
**Computer Graphics Specialist**, Created Scientific Data Visualizations for supercomputer research. Taught workshops; Produced videotapes; Acquired video equipment, Attended Data Visualization Workshops at [NCSA](#).

**Syracuse University Department of Industrial Design**, Syracuse, NY 9/87 – 12/91  
September 1987 – December 1991  
**Instructor:** Taught Computer Aided Design for Industrial Design; Used SDRG-IDEAS software running on a VAX mainframe. Developed curriculum and co-authored graphics library for programming

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**Travel:** Melbourne, Mumbai, London, Seoul, Paris, Kyoto, Banff, Barcelona, Florence, Bilbao, Geneva, Dublin, New York, Vancouver,

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## Technical Skills

Software Languages: C++, C#, JavaScript, Objective-C, Java  
Development Tools: XCode, Unity, Visual Studio  
Platforms: iOS, HoloLens, GearVR, html5/canvas/general web  
Other: Adobe Premiere, Gimp, video editing, procedural animation, web design, audio design/processing, image processing

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## Lectures/Presentations

**Palo Alto, California** 4/17  
Presented my work at Stanford University as part of the MediaX series  
<https://mediax.stanford.edu/events/artificial-life-meets-augmented-reality>

**San Jose, California** 11/16  
Presented my work on AI-driven characters for augmented reality at the [Narrative Summit](#)

**Santa Barbara, California** 6/16  
Presented [keynote](#) at the [Immersive Learning conference](#)

**Los Angeles, California** 10/15  
Presented on a panel at [Digital Hollywood](#)

**Barcelona, Spain** 2/13  
Presented keynote presentation at [VISIGRAPP](#) conference

**Pittsburgh, PA** 10/11  
Presented Virtual Body Language at Carnegie-Mellon University's ETC

<b>Vancouver, BC, Canada</b> Gave keynote presentation at <a href="#">International Symposium on Computational Aesthetics in Graphics, Visualization, and Imaging</a> : a SIGGRAPH co-located conference.	8/11
<b>Menlo Park, California</b> Gave a presentation at the <a href="#">Talks on Computing Systems</a> series at Carnegie-Mellon University, Silicon Valley, NASA Ames Campus	5/11
<b>Laval, France</b> Gave the first keynote at the <a href="#">Laval Virtual</a> conference	4/11
<b>Los Angeles, California</b> <i>Virtual Body Language</i> Presented avatar expression at an invitation-only workshop at <a href="#">ICT, USC</a>	2/11
<b>Banff, Alberta, Canada</b> , <i>Self-Portraits in Mandelbrot Genetics</i> <a href="#">Smart Graphics</a> . Presented mathematically-generated artworks	6/10
<b>Toronto, Ontario, Canada</b> , <i>The Gestural Turing Test</i> <a href="#">AAMAS</a> Presented motion-capture experiment in nonverbal communication and believability (details available at <a href="http://gesturalturingtest.com/">http://gesturalturingtest.com/</a> )	5/10
<b>Melbourne, Australia</b> , <i>Workshop Lecturer</i> <a href="#">ACAL</a> - Presented ecological simulation using planetary toy physics, emphasizing Open, collaborative development	12/09
<b>Palm Springs, California</b> , <a href="#">Keynote Speaker</a> . <a href="#">HPC Horizons</a> . How genetics, physics, and communication can be represented for efficient traversal over the internet for virtual worlds. Other Keynote speakers were Craig Venter and Jaron Lanier.	3/08
<b>Boston, Massachusetts</b> <a href="#">Prime Numbers are the Holes Behind Complex Composite Patterns</a> (The <a href="#">Divisor Plot</a> ) at the <a href="#">7<sup>th</sup> International Conference on Complex Systems</a>	10/07
<b>Vancouver, BC, Canada</b> <i>Online Body Language - Expressivity and Identity in Avatars and Autonomous Creatures</i> <a href="#">School of Interactive Art and Technology</a> (SFU) Research Colloquium	9/07
<b>Boston, Massachusetts</b> <i>Physical Avatar – a new technology for Second Life</i> <a href="#">SIGGRAPH</a> conference Tech Talk	8/06
<b>Bloomington, Indiana</b> <a href="#">A Particle Swarm Selects for Evolution of Gliders in Non-uniform 2D Cellular Automata</a> - paper presented at <a href="#">Alife X</a> conference	6/06
<b>Pittsburg, Kansas</b> presented overview of work at <a href="#">Pittsburg State University</a>	4/05
<b>Bilbao, Spain</b> conducted workshop at the <a href="#">Universidad del Pais Vasco</a> on <i>techniques for using mathematics to generate portraits. Presented interactive and print work at La 17 Exposición de Audiovisuale.</i>	12/04
<b>Bilbao, Spain</b> <a href="#">Sharing the Virtual Ecosystem</a> (the <i>Interactive Web of Virtual Life and Avatars</i> ) Art and Technology Symposium, <a href="#">Universidad del Pais Vasco</a>	12/03
<b>Stanford University, Palo Alto, CA</b> <a href="#">Avatar-Centric Communication in There</a> , co-lectured with Dr. <a href="#">Chuck Clanton</a> , at the <a href="#">Human-Computer Interaction Seminar</a>	4/03

<b>Dundee, Scotland</b> <i>Artful Biology: Simulated Creatures for Software Entertainment</i> , presented at International <a href="#">Centre for Computer Games and Virtual Entertainment</a>	2/01
<b>Paris, France</b> <a href="#">Avatar Physics and Genetics</a> , presented at <a href="#">Virtual Worlds, 2000</a>	7/00
<b>San Jose, CA</b> presented artificial life research at <a href="#">Digital Biota</a> conference	11/99
<b>Syracuse, NY</b> Presented overview of artistic development Syracuse University Visual and Performing Arts Dept.	2/99
<b>Paris, France</b> <a href="#">Designing Emergence in Animated Artificial Life Worlds</a> presented at Virtual Worlds 98	7/98
<b>Los Angeles, CA</b> <a href="#">Attractiveness vs. Efficiency</a> ( <i>How Mate Preference Affects Locomotion in the Evolution of Artificial Swimming Organisms</i> ) - presented at Artificial Life VI	6/98
<b>Brighton, England</b> Darwin Pond - Demonstration presented at the European Conference on Artificial Life	7/97
<b>Montreal, Canada</b> <i>Eukaryotic Virtual Reality (The Emergent Art of Artificial Life)</i> - presented in a Panel at <a href="#">ISEA95</a> conference	9/95
<b>Geneva, Switzerland</b> <i>Disney Meets Darwin</i> - Paper presented at <a href="#">Computer Animation, '95</a>	4/95
<b>Cambridge, MA</b> <i>Explorations in the Emergence of Morphology and Locomotion Behavior in Animated Characters</i> - Paper presented at <a href="#">Artificial Life IV</a> , MIT	7/94
<b>San Diego, CA</b> Artificial Life and a Computer Art of Emergence - slide and video lecture: <a href="#">Center for Research and Computing in the Arts, UCSD</a>	5/92
<b>New London, CT</b> <i>A Genetic Approach to Computer Art</i> - Visiting Artist, lectured and conducted workshops on mathematical images, Center for Arts and Technology, Connecticut College	10/91
<b>San Francisco, CA</b> <a href="#">Factors Inducing Periodic Breathing in Humans</a> ( <i>a case study in scientific data visualization</i> ), co-lectured with Dr. Wayne Fordyce, at <a href="#">Visualization '90</a>	10/90
<b>Halifax, Nova Scotia</b> <i>Computer Graphics for the Human</i> - a half-day tutorial, presented at <a href="#">Graphics Interface/Vision Interface</a>	5/90
<b>Williamsburg, VA</b> <a href="#">A Computergraphical Model of Multi-generational Family Systems</a> – Presented (with Jim Amodio and Tom Schur) at Advanced Computing for the Social Sciences	5/90
<b>New London, CT</b> <i>Using Mathematics to Arrive at Imagery</i> - Presented at the <a href="#">Arts and Technology Symposium II Connecticut College</a>	2/89
<b>Syracuse, NY</b> Television Interview (with computer animations) on 6:00pm news story on Chaos: interviewer, Scott Atkinson, News Center Five	7/88
<b>Syracuse, NY</b> Fractal Geometry in Art - The Mandelbrot Colloquium, with four other speakers <i>including Dr. Mandelbrot</i>	11/86

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## Published Works

### Embodied AI Characters for Emergent Narrative

OurMedia Blog: <http://ourmedia.org/embodied-ai-characters-for-emergent-narrative/>

Various articles published on Nature, Brain, Technology: <https://ventrellathing.wordpress.com/>

### Brainfilling Curves – a Fractal Bestiary

A color book about a system for discovering and rendering plane-filling fractal curves.

[Book web site](#)

### From Ragdoll Physics to Expressive Avatars

Paper published in the International Journal of Design and Innovation Research: 2011

[see abstract](#)

### Virtual Body Language

Currently available at [www.virtualbodylanguage.com](http://www.virtualbodylanguage.com) - published by [ETC Press](#) in 2011

**Self-Portraits in Mandelbrot Genetics** – Springer: conference proceedings of [Smart Graphics](#), 2010

**The Gestural Turing Test** - published in the conference proceedings of [AAMAS](#), 2010

**Glider Dynamics on the Sphere: Exploring Cellular Automata on Geodesic Grids.** to be published in the Journal of Cellular Automata (Editor Andy Adamatzky)

<http://www.ventrella.com/AI/Cells/GlidersOnSpheres.pdf>

**A Spherical XOR Gate Implemented in the Game of Life** to be published in the book: Game of Life Cellular Automata, Editor Andy Adamatzky, Springer.

**Evolving Structure in Liquid Music** [The Art of Artificial Evolution](#), Natural Computing Series, Springer-Verlag, Editors: Romero, J., and Penousal, M. November, 2007

<http://www.springer.com/west/home/computer/foundations?SGWID=4-156-22-173745009-0>

**Evolving The Mandelbrot Set to Imitate Figurative Art** [Innovations in Evolutionary Design](#), Natural Computing Series, Springer-Verlag, Editors: Hingston, P., Barone. L., and Michalewicz, Z. Berlin, 2007

<http://www.ventrella.com/Tweaks/Portraits/EvolvingMandelbrot.pdf>

**Gliders and Riders - A Particle Swarm Selects for Coherent Space-time Structures in Evolving Cellular Automata** – a chapter in [Stigmergic Optimization](#), from the Studies in Computational Intelligence Series. Vol 21, Springer-Verlag. eds. Ajith, Grosan, and Ramos. page 131, 2006

<http://www.springer.com/east/home/computer?SGWID=5-146-22-173661230-0>

**GenePool – Exploring the Interaction Between Natural Selection and Sexual Selection** –Chapter 4 in [Artificial Life Models in Software](#). ed. Andrew Adamatzky and Maciej Komosinski. Springer, 2005. Page 81

<http://www.springerlink.com/content/tv10101372574541/>

**Animated Artificial Life**, Chapter 3 in [Virtual Worlds \(Synthetic Universes, Digital Life, and Complexity\)](#) (ed. Heudin, J.C.) Perseus Books, 1999 pages 67-94

[http://www.ventrella.com/AI/Animated/animated\\_0.html](http://www.ventrella.com/AI/Animated/animated_0.html)

**A Computergraphical Model of Multi-Generational Family Systems**, chief author and editor (with James H. Amodio, MPS, and Thomas J. Schur, MSW), in *Social Science Computer Review*, Spring 1991 Volume 9 Number 1, pages 13-26

<http://ssc.sagepub.com/cgi/content/abstract/9/1/13>

**A Particle Swarm Selects for Evolution of Gliders in Non-uniform 2D Cellular Automata** published in *Alife X conference proceedings*, MIT Press, 2006

<http://www.ventrella.com/Alife/Cells/GlidersAndRiders/SwarmGliders.pdf>

**Avatar Physics and Genetics**, published in *Virtual Worlds*, 2000 (ed. Heudin, J.C.), Springer-Verlag Berlin/Heidelberg

<http://portal.acm.org/citation.cfm?id=647690.731011&coll=GUIDE&dl=GUIDE&CFID=15151515&CFTOKEN=6184618>

Interview quotes in the article "**Evol-artists - a New Breed Entirely**", in *EvoNews* newsletter. Issue 11, Summer, 1999. (<http://www.dcs.napier.ac.uk/evonet/>)

[http://evonet.lri.fr/evoweb/news\\_events/news\\_features/article.php?id=40](http://evonet.lri.fr/evoweb/news_events/news_features/article.php?id=40)

**Designing Emergence in Animated Artificial Life Worlds**, *Virtual Worlds*, 98 (ed. Heudin, J.C.) 1998, Springer-Verlag pages 143-155 <http://portal.acm.org/citation.cfm?id=733452>

**Attractiveness vs. Efficiency: (How Mate Preference Affects Locomotion in the Evolution of Artificial Swimming Organisms)**, *Artificial Life VI*, 1998, MIT Press

<http://portal.acm.org/citation.cfm?id=286160&dl=&coll=&CFID=15151515&CFTOKEN=6184618>

**Sexual Swimmers: Emergent Morphology and Locomotion Without a Fitness Function**, From *Animals to Animats*, (page 484) 1996, MIT Press [http://www.ventrella.com/Alife/Sexual/sexual\\_0.html](http://www.ventrella.com/Alife/Sexual/sexual_0.html)

**Disney Meets Darwin: The Evolution of Funny Animated Figures**, *Computer Animation '95 Proceedings - Geneva Switzerland* <http://portal.acm.org/citation.cfm?id=791214.791452>

**Explorations in the Emergence of Morphology and Locomotion Behavior in Animated Characters**, *Artificial Life IV proceedings*, MIT Press, 1994

#### Other Published Materials:

Write-up on artificial life research with color illustration in **Morph's Outpost**: "ALIFE IV, or, The Bots are Coming", by Marc P. Seybold, page 18, Nov. 94 issue.

Write-up on Air Traffic Control Visualization Prototype: Enhancing Air Traffic Control Information, by David L. Chandler, in the [MIT Technology Review](#), pages 10-11 8/94

Co-designed cover of **IBM Systems Journal** ([vol. 33, No 2 1994](#)) with J.F. Musgrave, image depicts a family of images I designed. 6/94

Created five illustrations for book: [The Children's Machine \(Rethinking School in the Age of the Computer\)](#), by Seymour Papert, 6/93

Two images published in the large color-illustration book: **Digitale Visionen**, IBM Germany, by Dr. [Herbert Franke](#), 1989

write-up on computer art, with two color illustrations, in the article, *Die Wunderwelt Der Gebrochenen Dimension* by Susanne Pach, in *Video activ*, April/May, 1989, Germany, 5/89

**Creatures du Plan Complexe**, (French translation of *IRIS Universe '88* article with color illustrations, in *Tech Images*, January issue: Paris France, 1/89