Jeffrey Ventrella

ventrella@protonmail.com
ventrella.com

Gifted artist since age 10; software algorithmic artist since age 25; inventor of virtual worlds; expert in virtual body language; award-winning artificial life developer and math artist; at age 62, continuing to innovate at the intersections of art, math, and science; antidisciplinary inventor, author, and interaction designer; committed to humanizing technology through design research and inspiration from evolutionary biology.

Massachusetts Institute of Technology (**The Media Lab**)	MS	Media Arts and Sciences	1994
Syracuse University	MFA	Computer Graphics/Video	1987
Virginia Commonwealth University	BFA	Art Education/Art History	1984

University of Maryland Institute for Bioscience College Park, Maryland
Developer/designer (Contract) 7/20 – current
Developing a new front-end for nmrPipe/nmrDraw, in collaboration with Dr. Frank Delaglio, using the Qt framework with C++. This software is used by scientists who do spectral analysis of nuclear magnetic resonance data

EyeBrain Media Petaluma, CA
Owner/Developer/Designer 1/20 – current
Several ongoing projects including successful innovative generative NFT collaborations with Canton Becker, Math visualizations with Michael Dunworth, and new initial involvement in decentralized web

CSforAll New York, NY **Developer/designer (Contract)** 4/19 – 9/19
Developed prototype and core functionality for an interactive crowd-sourced timeline of the history of computer science education. Developed JSON interface and data representation using web technologies

EndlessOS Hack, San Francisco, CA **Digital Toymaker (Contract)** 8/18 – 12/18
Designed and implemented the first game for the Hack product

MeshOS, Sausalito, CA **Designer/Engineer (Contract)** 3/18 – 6/18
Consulted on design and interaction for the MeshOS system

Leap Motion, San Francisco, CA 4/17 – 12/17
Designer/Engineer (Contract)
Worked with engineers to implement my original Clusters algorithm in VR

MeshOS, Sausalito, CA **Designer/Engineer (Contract)** 2/17 – 8/17
Consulted on design and interaction for the MeshOS system

Wiggle Planet, LLC, Petaluma, CA 10/12 – 1/18
Founder
Developed kid-friendly mobile apps featuring self-animated characters and artificial life with geo-located augmented reality

Virtuocity VR, Inc. London, UK 8/16 – 12/16
Developer/Designer (Contract)
R&D in a virtual reality application using the Samsung GearVR and Unity

Pillantas, Inc. San Francisco, CA 6/16 – 8/16
Developer (Contract)
R&D using the Microsoft HoloLens; developed prototypes in Unity/Windows 10 for a highly-innovative augmented reality interface

Binary Simplex Washington, DC 1/15 – 12/15
Developer (Contract)
Implementing cross-platform (iOS and Windows) rendering tools for patented optimized 3D mesh generation based on DICOM files.

For Goodnes Sake San Francisco, CA 10/14 – 1/15
Designer/Developer (Contract)
Design and implementation of javascript-based simulation components for female-oriented sexuality education app

High Fidelity San Francisco, CA 4/13 – 8/13
Developer (Contract)
Helped build-out core avatar systems, user interactions, particle systems, camera behaviors, and other virtual world features

Visual Music Systems, Boston, MA 6/11 – 9/12
Principle Developer
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

The Internet Archive San Francisco, CA 10/10 – 11/10
Designer/Engineer (Contract)
Worked closely with internet visionary **Ted Nelson** on implementation of ZigZag for the **Open Library.** Project management, JavaScrtipt/HTML5/CSS development

Emota.net Menlo Park, CA 7/09 – 9/10
Designer/Engineer (Contract)
NSF-funded start-up. Consulted on design; development: interactions and interfaces for social connectedness. Developed JavaScript code for web and iPad

School of Interactive Arts and Technology , SFU, Vancouver, BC 9/09 – 8/10
Research Scholar: nonverbal communication in virtual worlds.
Taught Advanced Game Design class to 4th-year students.
Wrote the book: *Virtual Body Language*: www.virtualbodylanguage.com

The Internet Archive San Francisco, CA 3/08 – 7/09
Developer/Designer: built home page for **NASAImages.org**; designed and Implemented the 'create account' page and other pages. Helped design the Open Library Book reader using JavaScript/CSS.

Centre for Digital Media Vancouver, BC — 8/08 – 12/08
Faculty: Developed curriculum and taught **Building Virtual Worlds**, advised students on industry-funded projects

Millions Of Us Sausalito, CA — 1/08 – 2/08
Consultant: Developed avatar-customization tool, general consulting

SheZoom New York, NY — 12/07 – 1/08
Animator: designed and implemented Shemoticons in Flash

Linden Lab (Second Life) San Francisco, CA — 1/05 – 11/07
Senior Developer: Developed software and designs for Second Life, invented Flexi Prims, FollowCam. vehicle physics, camera behavior, avatar customization, and user interfaces

Adobe Systems San Jose, CA — 2/04 – 7/05
Programmer: Worked with the Acrobat 3D team (originally Adobe Atmosphere), developed JavaScript for direct manipulation, modeling, and interactive behavior of 3D content

There, Inc Menlo Park, CA — 4/97 – 1/04
Co-Founder and Principle Inventor of There.com
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 patent granted to the company.

Rocket Science Games, Inc. San Francisco, CA — 7/95 – 4/97
Designer/Engineer: Designed and prototyped software games. Worked with author Michael Crichton on a game prototype. Designed Darwin Pond

ABSOLUT Vodka (via TBWA/Chiat Day NY, NY) — 2/96 – 5/96
Artist/Programmer: Developed code to generate stylized genetic algorithm-based variations of the Absolut Vodka Bottle using interactive evolution. Published online as promotion for the "Absolut Kelly" web site, Consulted with Kevin Kelly on the site

Protozoa San Francisco, CA — 3/95 – 3/95
Software Engineer: Worked with Brad deGraf. Developed interactive tool to generate 3D tree models for a computer game.

Tufts University, Experimental College, Medford, MA — 1/95 – 3/95
Instructor: Designed and taught course: "Populating Virtual Reality". (Artificial Life: cultural implications, technical aspects).

Papyrus Design Group, Somerville, MA — 12/94 – 3/95
Designer: Developed script and consulted on animated characters for proposed CD-ROM-based interactive comedy game.

Do While Studio, Boston, MA — 9/94 – 4/95
Artist: Developed interactive animations; worked with artist Jen Hall

Cinergi Productions Lenox. MA 7/94 – 8/94
Artist/Programmer: Feature Film Special Effects Animator,
(Sylvester Stallone Film, *Judge Dredd*) Programmed custom animation
effects on SGI IRIS; collaborated artists.

Visible Language Workshop, MIT Media Lab, Cambridge, MA 9/92 – 3/94
Research Assistant: multimedia interfaces, AI, information design, and animation.

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 SDRC-IDEAS
software running on a VAX mainframe. Developed curriculum and co-authored
graphics library for programming

Travel:

Melbourne, Mumbai, Seoul, Vienna, Paris, Kyoto, Banff, Barcelona,
Florence, Bilbao, Vienna, London, Geneva, Dublin, Vancouver,

Technical Skills

Software Languages:	JavaScript, C++, C#, Java
Development Tools:	Qt, XCode, Unity, Visual Studio
Other:	Video production, augmented/virtual reality, Adobe, Gimp, procedural animation, web design, generative NFT's, audio design/processing, visual number theory, photography music composition/improvisation, music theory, artificial life

Lectures/Presentations

Mendocino Redwoods, California
Presented "The Future of Decentralized Art and Music" at DWEB Camp 8/22

Linz, Austria
Presented paper on fractal curve techniques at the Bridges Math/Art conference 6/19

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

San Jose, California
Presented my work on AI-driven characters for augmented reality 11/16
at the Narrative Summit

Santa Barbara, California
Presented keynote at the Immersive Learning conference 6/16

Los Angeles, California
Presented on a panel at Digital Hollywood 10/15

Barcelona, Spain
Presented keynote presentation at VISIGRAPP conference 2/13

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

Vancouver, BC, Canada
Gave keynote presentation at International Symposium on Computational Aesthetics

in Graphics, Visualization, and Imaging: a SIGGRAPH co-located conference. 8/11

Menlo Park, California
Gave a presentation at the **Talks on Computing Systems** series
at Carnegie-Mellon University, Silicon Valley, NASA Ames Campus 5/11

Laval, France
Gave the first keynote at the ***Laval Virtual*** conference 4/11

Los Angeles, California *Virtual Body Language*
Presented avatar expression at an invitation-only workshop at ICT, USC 2/11

Banff, Alberta, Canada, *Self-Portraits in Mandelbrot Genetics*
Smart Graphics. Presented mathematically-generated artworks 6/10

Toronto, Ontario, Canada, *The Gestural Turing Test*
AAMAS Presented motion-capture experiment in nonverbal communication and believability 5/10
(details available at http://gesturalturingtest.com/)

Melbourne, Australia, *Workshop Lecturer*
ACAL **-** Presented ecological simulation using planetary toy physics, emphasizing
Open, collaborative development 12/09

Palm Springs, California, Keynote Speaker. HPC Horizons.
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

Boston, Massachusetts *Prime Numbers are the Holes Behind Complex*
Composite Patterns (The Divisor Plot) at the 7th International Conference
on Complex Systems 10/07

Vancouver, BC, Canada *Online Body Language -*
Expressivity and Identity in Avatars and Autonomous Creatures 9/07
School of Interactive Art and Technology (SFU) Research Colloquium

Boston, Massachusetts *Physical Avatar* – a new technology for Second Life 8/06
SIGGRAPH conference Tech Talk

Bloomington, Indiana *A Particle Swarm Selects for Evolution of Gliders in Non-uniform 2D Cellular Automata* - paper presented at Alife X conference 6/06

Pittsburg, Kansas presented overview of work at Pittsburg State University 4/05

Bilbao, Spain conducted workshop at the *Universidad del Pais Vasco on techniques for using mathematics to generate portraits. Presented interactive and print work at La 17 Exposición de Audiovisuale.* 12/04

Bilbao, Spain *Sharing the Virtual Ecosystem (the Interactive Web of Virtual Life and Avatars)* Art and Technology Symposium, *Universidad del Pais Vasco* 12/03

Stanford University, Palo Alto, CA *Avatar-Centric Communication in There*, co-lectured with Dr. Chuck Clanton, at the Human-Computer Interaction Seminar 4/03

Dundee, Scotland *Artful Biology: Simulated Creatures for Software Entertainment,* presented at International Centre for Computer Games and Virtual Entertainment 2/01

Paris, France *Avatar Physics and Genetics,* presented at Virtual Worlds, 2000 7/00

San Jose, CA presented artificial life research at Digital Biota conference 11/99

Syracuse, NY Presented overview of artistic development Syracuse University Visual and Performing Arts Dept. 2/99

Paris, France *Designing Emergence in Animated Artificial Life Worlds* presented at Virtual Worlds 98 7/98

Los Angeles, CA *Attractiveness vs. Efficiency (How Mate Preference Affects Locomotion in the Evolution of Artificial Swimming Organisms)* - presented at Artificial Life VI 6/98

Brighton, England Darwin Pond - Demonstration presented at the European Conference on Artificial Life 7/97

Montreal, Canada *Eukaryotic Virtual Reality (The Emergent Art of Artificial Life)* - presented in a Panel at ISEA95 conference 9/95

Geneva, Switzerland *Disney Meets Darwin* - Paper presented at Computer Animation, '95 4/95

Cambridge, MA *Explorations in the Emergence of Morphology and Locomotion Behavior in Animated Characters* - Paper presented at Artificial Life IV, MIT 7/94

San Diego, CA Artificial Life and a Computer Art of Emergence - slide and video lecture: Center for Research and Computing in the Arts, UCSD 5/92

New London, CT *A Genetic Approach to Computer Art* - Visiting Artist, lectured and conducted workshops on mathematical images, Center for Arts and Technology, Connecticut College 10/91

San Francisco, CA *Factors Inducing Periodic Breathing in Humans (a case study in scientific data visualization)*, co-lectured with Dr. Wayne Fordyce, at Visualization '90 10/90

Halifax, Nova Scotia *Computer Graphics for the Human* - a half-day tutorial, presented at Graphics Interface/Vision Interface 5/90

Williamsburg, VA A Computergraphical Model of Multi-generational Family Systems – Presented (with Jim Amodio and Tom Schur) at Advanced Computing for the Social Sciences 5/90

New London, CT *Using Mathematics to Arrive at Imagery* - Presented at the Arts and Technology Symposium II Connecticut College 2/89

Syracuse, NY Television Interview (with computer animations) on 6:00pm news story on Chaos: interviewer, Scott Atkinson, News Center Five 7/88

Syracuse, NY Fractal Geometry in Art - The Mandelbrot Colloquium, with four other speakers ***including Dr. Mandelbrot*** 11/86

Published Works

Composite Number Polyrhythms: Animating and Sonifying the Divisor Plot
Paper published in Bridges 2022 Conference Proceedings, 2022

The Family Tree of Fractal Curves
A book of original research, math, geometry: fractalcurves.com

Embodied AI Characters for Emergent Narrative
OurMedia Blog: http://ourmedia.org/embodied-ai-characters-for-emergent-narrative/

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 - 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/Alife/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/Alife/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

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

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 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

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