

## **Matthew R. Lewis, Ph.D.**

Advanced Computing Center for the Arts and Design, The Ohio State University  
1224 Kinnear Road, Columbus, Ohio 43212-1198  
V: (614) 292-0747 F: (614) 292-7776  
mlewis@accad.osu.edu, <http://accad.osu.edu/~mlewis>

### **Education**

**Ph.D.** Computer and Information Science, Ohio State University, 2001  
**M.S.** Computer and Information Science, Ohio State University, 1993  
**B.S.E.** Computer Science Engineering, University of Pennsylvania, 1991  
**B.A.** Philosophy, University of Pennsylvania, 1991

### **Professional Experience**

**Assistant Professor** - Ohio State University, 2017-present  
Department of Design and ACCAD, joint appointment  
**Graphics Research Specialist** - Ohio State University, 1993-2017  
Advanced Computing Center for the Arts and Design (ACCAD)  
**Graduate Research Assistant** - Ohio State University, 1992-1993  
Advanced Computing Center for the Arts and Design (ACCAD)  
**Graduate Teaching Assistant** - Ohio State University, 1991  
Computer and Information Science Department

### **Publications**

Eisenmann, Jonathan, Matthew Lewis, and Rick Parent. "Spatiotemporal Ideation & Generation with Interactive Evolutionary Design" *Leonardo Journal*, Vol. 49, No. 3, Pages 246-250 June 2016.

Eisenmann, Jonathan, Matthew Lewis, and Rick Parent. "Probabilistic Decision Making for Interactive Evolution with Sensitivity Analysis" *EvoStar: EvoMUSART*, Granada, Spain, April 2014.

Eisenmann, Jonathan, Matthew Lewis, and Rick Parent. "Inverse Mapping with Sensitivity Analysis for Partial Selection in Interactive Evolution" *EvoMUSART: 2nd International Conference on Evolutionary and Biologically Inspired Music, Sound, Art and Design*, Vienna, Austria, April 2013. Published in *Evolutionary and Biologically Inspired Music, Sound, Art and Design (Lecture Notes in Computer Science) Volume 7834*, pp 72-84, 2013

Eisenmann, Jonathan, Matthew Lewis, and Rick Parent. "Trace Selection for Interactive Evolutionary Algorithms" In *Proceedings of GECCO: Genetic and Evolutionary Computation Conference*, Amsterdam, The Netherlands, July 2013.

Eisenmann, Jonathan, Benjamin Schroeder, Matthew Lewis and Richard Parent. "Creating Choreography with Interactive Evolutionary Algorithms" in *Proceedings of the 2011 International Conference on Applications of Evolutionary Computation*, *EvoStar: EvoMUSART*, Turin, Italy, April 2011

Eisenmann, Jonathan, Matthew Lewis and Bryan Cline. "Interactive Evolution for Designing Motion Variants" *Studies in Computational Intelligence*, 2011, Vol 343, p.135-149

Eisenmann, Jonathan, Matthew Lewis, and Bryan Cline. "Interactive Evolutionary Design of Motion Variants". *ICEC 2009, International Conference on Evolutionary Computation (part of IJCCI - The International Joint Conference on Computational Intelligence)* Madeira, Portugal, 5-7 October, 2009.

Lewis, Matthew. "Evolutionary Visual Art and Design", chapter in *The Art of Artificial Evolution*, Penousal Machado and Juan Romero (Eds), Springer, 2008.

Bezirtzis, Boris, Matthew Lewis, and Bryan Cline. "Visual Strategies for Parametric Modeling in Interactive Evolutionary Design." *Europial 1: Digital Thinking in Architecture, Civil Engineering, Archaeology, Urban Planning and Design: Finding the Ways*, Sept 2007, Montreal

Bezirtzis, Boris, Matthew Lewis, and Cara Christeson. "Interactive Evolution for Industrial Design" In *Proceedings of Creativity and Cognition*, Washington, DC, June 2007.

Lewis, Matthew. "Procedural Shading for Architecture: Adoption, Fabrication, and Implications" in *Proceedings of Generative Arts 2006*, Milan, Italy, ed. Celestino Soddu, December, 2006.

Zuniga Shaw, Norah and Matthew Lewis, "Inflecting Particles: locating generative indexes for performance in the interstices of dance and computer science", *Performance Research* 11(2), pp 75-86, Taylor & Francis Ltd, 2006.

Lewis, Matthew. "Randomness, Chance, Process: The Infinity Series", in *Charles A. Csuri: Beyond Boundaries, 1963 – Present*, editor Janice Glowski, College of the Arts, The Ohio State University, 2006.

Lewis, Matthew and Keith Ruston. "Aesthetic Geometry Evolution in a Generic Interface Evolutionary Design Framework" in *New Generation Computing* 23(2005), Ohmsha, Ltd. and Springer, 2005.

Dehlinger, Hans and Matthew Lewis. "Selective Extraction of Point Sets from Photographs as Starting Events of Generative-Art Line Drawings" in *Proceedings of Generative Arts 2004*, Milan, Italy, ed. Celestino Soddu, December, 2004.

Lewis, Matthew. "Aesthetic Video Filter Evolution in an Interactive Real-time Framework" in *Applications of Evolutionary Computing, EvoWorkshops 2004*, Coimbra, Portugal, 2004.

Lewis, Matthew. "Bowen Virtual Theater" in *SIGGRAPH '03: ACM SIGGRAPH 2003 Web Graphics*, 2003.

Lewis, Matthew and Richard Parent. "Interactively Evolving Virtual Environment Maps with Continuous Layered Pattern Functions" in *Proceedings of the 15<sup>th</sup> International Conference on Computer Animation*, Geneva, Switzerland, June 19-21, 2002.

Lewis, Matthew. "Visual Aesthetic Evolutionary Design Links" on CD accompanying *Creative Evolutionary Systems* book, eds. Peter J. Bentley and David W. Corne, eds. Morgan Kaufmann, 2002.

Lewis, Matthew. *Creating Continuous Design Spaces for Interactive Genetic Algorithms with Layered, Correlated, Pattern Functions*. Ph.D. Thesis. Ohio State University, 2001.

Lewis, Matthew and Richard Parent. "A Comparison of Parametric Contour Spaces for Interactive Genetic Algorithms" OSU-ACCAD-6/01-TR1, Advanced Computing Center for the Arts and Design, The Ohio State University, 2001.

Lewis, Matthew. "Overview of Virtual Human Representation" in *Computer Animation Algorithms and Techniques*, Richard Parent, Morgan Kaufmann, 2001.

Lewis, Matthew. "Aesthetic Evolutionary Design with Data Flow Networks" in *Proceedings of Generative Arts 2000*, Milan, Italy, ed. Celestino Soddu, December, 2000.

Lewis, Matthew. "An Implicit Surface Prototype for Evolving Human Figure Geometry" OSU-ACCAD- 11/ 00-TR2, Advanced Computing Center for the Arts and Design, The Ohio State University, 2000.

Lewis, Matthew. "Evolving Human Figure Geometry" OSU-ACCAD-5/00-TR1, Advanced Computing Center for the Arts and Design, The Ohio State University, 2000.

Lewis, Matthew. "An Implicit Surface Prototype for Evolving Human Figure Geometry" OSU-ACCAD-11/ 00-TR2, Advanced Computing Center for the Arts and Design, The Ohio State University, 2000.

Lewis, Matthew. "Sanbaso: A Web Based VRML Humanoid Animation Tool" OSU-ACCAD-10/97-TR1, Advanced Computing Center for the Arts and Design, The Ohio State University, 1997.

Carlson, Wayne, Stephen Spencer, Margaret Geroch, Matthew Lewis, Keith Bedford, David Welsh, John Kelley, and Arun Welch. "Visualization of Results from Distributed, Coupled Supercomputer- Based Mesoscale Atmospheric and Lake Models Using the NASA ACTS" OSU-ACCAD-7/95-TR1, Advanced Computing Center for the Arts and Design, The Ohio State University, 1995.

Lewis, Matthew. "Texture Mapping and Image-Based Polygon Coloring in VRML Environments" OSU-ACCAD-7/95 TR2, Advanced Computing Center for the Arts and Design, The Ohio State University, 1995.

Lewis, Matthew. "Automatic Animation Direction" Computer Graphics Research Laboratory Quarterly Progress Report No. 38. Department of Computer and Information Science, University of Pennsylvania, 1991.

## **Teaching**

Procedural Animation, 2009-present (Sidefx Houdini)

Visual Performance and Installation Technologies 2005-present (Max/MSP/Jitter)

Introduction to Programming, 2015 (Processing/p5.js – one month of shared semester-long class)

Designing Responsive Historical Environments, 2011 (co-taught with Jeff Haase/Design and David Staley/History)

New Ground, 2006 (co-taught with Norah Zuniga Shaw, Dance/ACCAD)

Advanced Digital Cinematography, 2002-2008 (RenderMan/Maya)

Digital Lighting, 2000 (RenderMan)

Virtual Environments, 1998-2002 (VRML)

Computer Animation, 1997 (Houdini)

Procedural Animation, 1994-1997 (Scheme/AL/Pegasys/RenderMan)

## **Presentations**

"3D Modeling, Mapping and Altering Spaces", at The Camouflage Project Symposium, The Mershon Center for International Security Studies, The Ohio State University, May 19-21, 2011.

"Evolving Gesture Technology", at Gesture at Large: an Interdisciplinary Conference on Gesture, The Wexner Center, Ohio State University, February 25-27, 2010.

"Casually Evolving Creative Technology Systems", for Computational Creativity: An Interdisciplinary Approach" Dagstuhl Workshop, Wadern, Germany, 12-16 July, 2009.

"Design Landscapes: making / seeing / navigating parametric spaces" at Talk 20 event at the Knowlton School of Architecture, the Ohio State University, May 29th, 2008.

"Procedural Shading", one week workshop presented at the University of Applied Arts Vienna (Universität für Angewandte Kunst Wien) December 4-8, 2006.

"Designing Collaborative Interdisciplinary CG Experiences in the Curriculum", panel participant, SIGGRAPH 2006 Conference, Boston, August 2, 2006.

"Online Virtual Environment Technology for Education and Visualization" Technology Enhanced Learning and Research (TELR) Presentation, The Ohio State University, March 18, 2002.

Live Houdini Content Authoring Competition, 1997 SIGGRAPH Side Effects User Group Meeting, 3rd place prize

"Creativity, Evolution, and Ethics: Concerning Artificial Life Applications for the Arts" co-presented with Carol Gigliotti in "The Artificial Life Class". Session Chair: Roy Ascott. College Art Association '97. New York, February 12-15, 1997.

## **Artwork: in Exhibitions, Publications, Installations, and Performances**

2016 3D printed sculpture in “Research through Making” exhibition at Urban Arts Space (with Peter Chan)  
2016 Interactive installation for “Torrence 6-36-86” immersive dance theatre performance, directed by Rashana Perks Smith  
2016 Image “Sketch” (1998) used/discussed in book “Artificial Aesthetics” by Miguel Carvalhais  
2016 Image “Difference Forms” (2008) used as the cover of the book “Transmission in Motion” by Maaïke Bleeker  
2014 3D printed data visualization sculpture, Lumos Gallery (with David Staley)  
2014 Performance/Installation “One Way: A Telematic Trio” (with Stephen Koplowitz, et al)  
2014 Projection mapped sculpture fabrication for “Camouflage Project” performance and exhibit installations  
2012 Interactive video installations, Columbus Historical Society (w/D.Staley, J.Haase, J.Eisenmann, and M.Duellman)  
2010 3D printed sculpture in Gesture (inclusive) exhibition, Hopkins Hall Gallery, Ohio State University  
2009 Animations, SIGGRAPH Information Aesthetics Showcase, New Orleans (with M Palazzi, NZ Shaw, and W Forsythe)  
2009 Animations, Synchronous Objects for One Flat Thing, reproduced, Wexner Center (w/Palazzi, Zuniga-Shaw, Forsythe)  
2007 Dance and Media Installations. Dragonfly Neo-V Gallery. Columbus, OH (with NZ Shaw and M Ainger)  
2004 Interactive video installation, Hopkins Hall, Ohio State University (with Daniel Jolliffe and Western Front)  
2004 Plotter drawings, Generative Art Conference, Politecnico di Milano University (with Hans Dehlinger)  
2003 Projected Video, Canal Street Projection Project, New Orleans Media Experience  
2003 Interactive Video Installation, Sullivant Gallery, Ohio State University  
2003 Realtime virtual environment, Web3D Symposium Art Show, St. Malo, France  
    Traveling: Manchester (Cornerhouse Contemporary Art Center); London (ICA London Media Centre); Bristol (Watershed); Huddersfield, UK (Media Centre, Media Lounge); Lancaster (Folly Gallery); Adelaide, Australia (Experimental Art Foundation); Skopje, Macedonia (Center of Contemporary Art).  
2003 Images, Focus magazine, Italy  
2002 Image, poster, book cover, web site, European Conference on Genetic Programming, Kinsale, Ireland.  
2001 Prints, Evolutionary Art and Design Competition, Congress on Evolutionary Computation, Seoul, Korea  
2000 Prints, Ohm, three person show, Nexus Foundation for Today’s Art, Philadelphia  
1997 Virtual Environment, Art on the Net, Machida City Museum of Graphic Arts, Tokyo, Japan  
1997 Animation “Burn”, Fifth Annual New York Digital Salon, Visual Arts Museum, New York  
1997 Image from animation, Leonardo (cover) Journal of the International Society for the Arts, Sciences and Technology  
1997 Print, Expanded Visions: Art & Technology, The Schumacher Gallery, Capitol University  
1997 Image from animation “Burn”. In “Procedural Animation” by D. Mahoney. Computer Graphics World Magazine  
1996 Web site, Eurographics, Poitiers, France  
1996 Prints, Columbus Art League Spring Juried Exhibition, Columbus Art League Gallery, Columbus, Ohio  
1996 Image, web site used as example, Creating Killer Web Sites, book by David Siegel  
1996 Web site, Dream Science ’96 Computer Graphics Grand Prix, STEC, Tokyo (“Special Prize”)  
1996 Prints, Programmed Vision, Hopkins Hall, The Ohio State University, Columbus, OH.  
1996 Prints, Scenes from the New Continent, The Ohio State University, Lima Campus  
1996 Print, OSU Faculty Club ACCAD Exhibition The Ohio State University, Columbus, OH.

## **Funded Project Participation**

*Autonomous Vehicle Test Course Visualization*, 2015-2016

Transportation Research Center Inc., PI: Maria Palazzi

*Mediated Spaces and Human Experience: Using Locative Technology to Enhance Presence and Place*, 2015-2017, \$59,925

Battelle Endowment for Technology and Human Affairs, PIs: Maria Palazzi, Mary Anne Beecher

*Seeding Sullivant Hall: Using today’s technology to tell yesterday’s stories through image, sound and interactive media.*

2014-2015, \$5000. ONE Ohio State Framework Grant, PI: Maria Palazzi

*Bio-Presence: Bring (Other) Animals into the Framework*, 2014-2015, \$10,000

ONE Ohio State Framework Grant, PI: Amy Youngs

*TWO Project for Motion Bank*, 2012-2014

Grants for Research and Creative Activity in the Arts and Humanities, PI: Maria Palazzi, Norah Zuniga-Shaw

*Reading the Code: Genetic Literacy Across the Middle School Curriculum*, 2010-2011, \$59,292  
Battelle Endowment for Technology and Human Affairs, PIs: R. Voithofer, K. Trundle, A. Dixson, D. Erchick

*Synchronous Objects for One Flat Thing, reproduced by William Forsythe*, 2006-2009, \$218,580  
Forsythe Foundation; OSU Arts and Humanities Innovation Grant Fund; PI: Maria Palazzi, Norah Zuniga-Shaw

*EMMA: an Experimental Dance and Technology Laboratory*, \$96,899  
Arts College Tuition Set Aside for Technology Grant, PI: Scott Marsh, Maria Palazzi

*The Story of "Jane" Multimedia Exhibit Development*, 2005, \$88,076  
Burpee Museum of Natural History, PI: Maria Palazzi, Matthew Lewis

*Virtual Theater: Actor Blocking Interface*, 2001-2002, \$20,000  
TELR Continuing and Expansion Grant, PI: Maria Palazzi, Lesley Ferris

*Virtual Theater Interface*, 2000-2001, \$106,756  
TELR Instructional Innovation Grant Program, PI: Lesley Ferris

*The Construction of an Interactive Computer Program for Finger Spelling in American Sign Language*, 1999-2001, \$49,285,  
Battelle Endowment for Technology and Human Affairs, PIs: Wayne Carlson, Brian Rotman

*Educating the Growing Network Operations Work Force*, 1995-1996, \$29,200  
National Science Foundation, PIs: Wayne Carlson, Charles Bender

*The Role of Computer Graphics Technology in the Human Perception of Reality*, 1993-1995, \$51,940, Battelle Endowment  
for Technology and Human Affairs & The Greater Columbus Arts Council, PI: Wayne Carlson

*Interactive Science Museum Installations*, 1993, \$33,000  
Center of Science and Industry, PI: Wayne Carlson

*On-line Steering of Scientific Simulations Using the NASA ACTS*, 1992-1995, \$1,012,765  
Advanced Research Projects Agency (ARPA) PI: Wayne Carlson

*Kitchen Ventilation Visualization*, 1991-1992, \$60,000  
American Gas Association Laboratories PI: Wayne Carlson

## **Reviewer**

Genetic and Evolutionary Computation Conference, Digital Entertainment Technology and Arts, 2011-current

Virtual Reality International Conference, 2009-current

EvoMUSART (Evolutionary Music and Art), 2003-current

SIGGRAPH Asia papers, 2015

Artificial Life journal, 2013

Virtual Words, 2012

Journal of Mathematics and the Arts, 2011

SIGGRAPH papers, 2006/2011

Australian Conference on Artificial Life, 2009

Creativity and Cognition, 2009

IJAIT: Artificial Intelligence in Music and Art, 2005

Web3D Symposium papers, 2002-2003

ACM SIGGRAPH Courses, 1996-2004

Addison-Wesley: Computer and Engineering Publishing Group, 1998

National Cancer Institute, National Institute of Health, SBIR Phase I & II, 1994-1995

## **College Committees**

ACCAD Systems Administrator search committee, 2017

Design department and ACCAD joint faculty search committee, 2016

Art department and ACCAD joint faculty search committee, 2016

College of Arts and Sciences Strategic Plan Cyber-Enabled Discovery Implementation Group, 2012-2013

Theatre department and ACCAD joint faculty search committee, 2012

College of the Arts Faculty Technology Committee, 2006-2007

Wexner Center for the Arts Design Committee for “The Fold” web site, 1997-1999

## **Affiliations**

Association for Computing Machinery (ACM)

ACM SIGEVO member

ACM SIGGRAPH