

Andrew Lucia

M.ARCH, B.A. Architecture

T: 612.240.4322

E: dau.palucia@gmail.com

Andrew Lucia Design & Research, <http://www.andrewlucia.com>

Associate Designer/Researcher, Sabin+Jones LabStudio <http://www.sabin-jones.com>

Visiting Lecturer, Cornell University, College of Architecture, Art and Planning, <http://www.aap.cornell.edu/>

Education

2005-2008 University of Pennsylvania, Master of Architecture. M. Arch

1997-2001 University of Minnesota, Bachelor of Arts in Architecture. B.A., Minor Emphasis in Urban Studies

Summary of Professional History

Andrew Lucia currently teaches seminars at Cornell University and has taught graduate seminars in the Departments of Architecture and Landscape Architecture at PennDesign. He is Director of Andrew Lucia Design & Research, an experimental architectural, design, and research based practice in Philadelphia. Andrew holds an Associate Design & Research position within Sabin+Jones Labstudio, a trans-disciplinary unit initiated within the Institute for Medicine & Engineering and the School of Design at The University of Pennsylvania, where he co-authored and is collaborating on the recently awarded *NSF EFRISEED grant titled: Energy Minimization via Multi-Scalar Architectures: From Cell Contractility to Sensing Materials to Adaptive Building Skins*. Andrew practiced residential architecture as a designer and project manager for five years in Minneapolis, MN in the offices of Yunker+Asmus Architects and M+A Architecture. He has acted as designer on two finalist entries for MoMA's Young Architect Program while working in the offices of Ruy Klein Architects (2007) and su11 architecture+design (2008). While at the office of Barkow Leibinger Architects, Andrew acted as initial project designer for the *Pavilion at Museum für Angewandte Kunst*, the subject of an exhibition *Der Pavillon – Lust und Polemik in der Architektur* at the Deutsches Architekturmuseum, Frankfurt am Main, Germany, 2009.

Summary of Research and Design Interests

Andrew Lucia is a designer specializing in architectural, spatial and computational design and visualization through time-based modes of thinking. His research explores aspects of *rhythm* and *difference* as they relate to the generation and perception of complex organizations of matter at scales from nano to human to macro. His current research interests broadly examine the role of *Information Theory* in relation to aesthetics and perception within dynamic systems through the analysis of order/organization, pattern and affect. Through teaching in current seminars, Andrew explores these topics spatially, structurally, and perceptually through the lens of 20th century music composition and cinematic techniques. These interests are extended through research and design conducted within his own practice and the Sabin+Jones LabStudio where he is applying these concepts systemically to analytic and projective inquiries varying from issues rooted in cellular motility in the biological sciences to architectural design, perception, and market dynamics.

Current Research and Design Projects (Select)

- 2010-current *NSF EFRISEED grant titled: Energy Minimization via MultiScalar Architectures: From Cell Contractility to Sensing Materials to Adaptive Building Skins*. This project seeks to explore materiality from nano to macro-scales based upon understanding of non-linear, dynamic human cell behaviors on geometrically-defined substrates. The insights from these studies will lead to the biomimetic design and engineering of highly aesthetic, passive materials, and sensors and imagers that will be integrated into responsive building skins at the architectural scale. [Sabin+Jones LabStudio, UPENN; Authors, Yang (PI), Sabin (co-PI), Jones (co-PI), Engheta (co-PI), Van der Spiegel (co-PI), & Lucia (Senior Personnel)]
- 2010-current Visual production for "Biennale," a modern opera in collaboration with Wendy Steiner (Libretto) and Paul Richards (Composer). [Andrew Lucia Design and Research]
- 2010-2011 Artist in Residence, Breadboard Gallery and NextFab Studio, Philadelphia, PA. Design research: Organization and difference within spatial perceptual systems using *Information Theory*. Initial design research entitled *Memory, Difference, and Information: Generative Architectures Latent to Material and Perceptual Plasticity* submitted to Information Visualization Society Conference. [Sabin+Jones LabStudio, UPENN]
- 2009-current Use of *Information Theory* for rare event pattern detection and visualization in dynamic market systems. [Andrew Lucia Design & Research]
- 2008-current Scale-free detection of motility and difference within dynamic biological systems using *Information Theory* and *Rhythm Analysis*. Initial scientific research, *Scale-free detection of motility and difference within dynamic biological systems using Information Theory and Rhythm Analysis*, in prep for Integrated Biology. [Sabin+Jones LabStudio, UPENN]
- 2008-2010 *Pitch to Rhythm :: Rhythm to Pitch*. Perceptual analysis of rhythm and difference within generative sonic systems in relation to objects, events, and sensation. Initial research published in *Leonardo Music Journal Number 20*, MIT Press. [Andrew Lucia Design & Research with Christopher Lee and Matthew Lake]

Andrew Lucia

Research Appointments

- 2008-2011 Senior Designer/Researcher, Sabin+Jones LabStudio, Institute for Medicine and Engineering and School of Design, Department of Architecture, University of Pennsylvania.
- 2007-08 Graduate Research Associate, Nonlinear Systems Organization (NSO), UPENN, School of Design

Academic Employment History

- 2011-current Visiting Lecturer, Cornell University, College of Architecture, Art and Planning
- 2011 Instructor, University of Pennsylvania, School of Design, Graduate Dept. of Landscape Architecture
- 2008-2011 Instructor, University of Pennsylvania, School of Design, Graduate Dept. of Architecture
- 2006-2007 Design Studio Teaching Assistant, University of Pennsylvania, School of Design, Graduate Dept. of Architecture

Graduate Courses Taught

- 2011, spring Topics in Digital Media, LARP 740, University of Pennsylvania, School of Design, Dept of Landscape Arch
- 2011, spring Visual Studies Seminar, ARCH 522, University of Pennsylvania, School of Design, Graduate Dept of Arch
- 2010, fall Visual Studies Seminar, ARCH 621, University of Pennsylvania, School of Design, Graduate Dept of Arch
- 2010, spring Visual Studies Seminar, ARCH 522, University of Pennsylvania, School of Design, Graduate Dept of Arch
- 2009, fall Visual Studies Seminar, ARCH 621, University of Pennsylvania, School of Design, Graduate Dept of Arch
- 2009, spring Visual Studies Seminar, ARCH 522, University of Pennsylvania, School of Design, Graduate Dept of Arch
- 2008, fall Visual Studies Seminar, ARCH 521, University of Pennsylvania, School of Design, Graduate Dept of Arch

Professional Employment History (Design works, projects, and research)

- 2008-current **ANDREW LUCIA Design & Research**, Philadelphia, PA
Principal
Traces on the Farther Side, 2011 (real-time visualization for live or recorded performance of *A Flower on the farther side*) Computational design and co-direction, Andrew Lucia
Collaboration with Wendy Steiner, co-director and producer.
Commissioned by Parthenia, A Consort of Viols, to accompany Frances White's *A Flower on the farther side* (2010)
Biennale, 2010-current (a modern opera)
Lead Design of visual production, Andrew Lucia
Collaboration with Wendy Steiner, producer/author of libretto & Paul Richards, composer;
Professional Office Building, Minnesota. 2010-current.
Project Lead/Designer. Office [4,000 ft²]
Home Renovation/Addition, Minnesota.
Project Lead/Designer. Remodel/Addition [1,000 ft²]
Meander Variegating Architecture: (a book) 2008-2010 [by Kolatan, F. & Sabin, J. (Bentley Press)]
Cover and Graphic design by Andrew Lucia. [500 pages, color]
The Protection Papers; Borders, Boundaries, and Blockades
in the Art of Dennis Oppenheim, 2008 (investigative research)
Temporal investigations, film reconstructions, and renderings by Andrew Lucia.
Collaboration with Aaron Levy, author of study (Slought Foundation, Philadelphia PA)
- 2008-current **SABIN+JONES LABSTUDIO**, Philadelphia, PA
Associate Researcher/Designer. 2008-present.
NSF EFRISEED grant funded research titled: Energy Minimization via MultiScalar Architectures: From Cell Contractility to Sensing Materials to Adaptive Building Skins
Co-Author/Senior Personnel. 2010-current.
Branching Morphogenesis (installation)
Lead Design/Project Management
-*Ars Electronica 2009 inaugural exhibition*. Ars Electronica. Linz, Austria. 2009-10.
-*Siggraph Evolve 2008 Exhibition*. Los Angeles, CA. Aug, 2008.
Ground Substance (installation)
Design/Project Management
-*Fertile Ground exhibition*. Philadelphia, PA. Oct, 2009.
-*Siggraph 2009 Generative Fabrication Galleries*. New Orleans, LA. Aug, 2009.
- 2008 **KELLER EASTERLING ARCHITECT**, New York
Ordos, Mongolia Villa, Ordos, Mongolia
Project Team, 2008.

Andrew Lucia

- 2008 **su11 architecture+design**, New York
MOMA PS1 YAP Finalist
Chromazon, Queens, New York
Project Design Team, un-built 2008.
- 2007 **BARKOW LEIBINGER ARCHITECTS**, Berlin
Pavilion at Museum für Angewandte Kunst
Project Concept and Design 2007, Frankfurt
Home Delivery Exhibition at MoMA
Project Team, un-built 2007, New York
- 2007 **RUY KLEIN ARCHITECTS**, New York
MoMA PS1 YAP Finalist
Knot Garden, Queens, New York
Project Lead Design, un-built 2007
- 2006 **ARUP ENGINEERS ASSOC., ADVANCED GEOMETRY UNIT**, London
AGU Artist's Space Exhibition New York.
Hedge by Cecil Balmond, AGU, and Jenny Sabin
Project Management and assembly, Summer 2006.
- 2004-2005 **MARC ASMUS ARCHITECT**, Minneapolis, MN
Intern Architect
Cameron Estate West Palm Beach, Florida.
Project Lead/Designer (All Phases) 2003-2008.
Residence [7,700 ft²], Horse Stables [5,500 ft²], Groom's Quarters [2,700 ft²]
Cunningham Residence Flint Hill, Virginia.
Project Lead/Designer (All Phases) 2004-2006.
Residence [1,300 ft²], Guest House [1,000 ft²], Horse Stables [1,650 ft²]
Lane Residence Flint Hill, Virginia.
Project Lead/Designer. 2004. Un-built. Residence [2,100 ft²]
- 2001-2004 **YUNKER+ASMUS ARCHITECTURE**, Minneapolis, MN
Intern Architect (Summary of major works)
Cameron Estate West Palm Beach, Florida.
See above.
Swenson Residence St. Paul, Minnesota.
Design Development, Construction Documents. 2001-2003. Completed 2004.
Remodel/Addition [3,000 ft²]
Windsong Farms Golf Course Orono, Minnesota.
Construction Documents, Models. 2002-2004. Completed 2004.
Club House [6,715 ft²], Grill [8,385 ft²], Pro Shop [2, 310 ft²]
MacDonald Residence Addition Minneapolis, Minnesota.
Design Documents, Construction Documents. 2002-2003. Completed 2003.
Addition [600 ft²]
Benz Residence White Bear Lake, Minnesota.
Construction Documents, Renderings, Models. 2001. Un-built.
Residence [7,500 ft²]
- Articles/Projects Published: [Self]**
- 2010 Kolatan, F. & Sabin, J. **Meander Variegating Architecture**. Bentley Press, Exton, PA. 2010. Cover design, graphic design, and select works by Andrew Lucia.
- 2010 Lucia, A. **Form Between Matter**. Graduate thesis with Annette Fierro (advisor). Self-published. 2010.
- 2008 Lucia, A. Thesis project featured in Work 2007/2008. University of Pennsylvania School of Design, Dept of Architecture. p72, 2008.
- 2008 Lucia, A, Lake, Ruggles. "**Living Conditions**" Via: Occupation. PDSP/School of Design, University of Pennsylvania, Philadelphia, PA. pp 98-101, 2008.
- 2008 Lucia, A. "**Alpha 60**" Via: Occupation. PDSP/School of Design, University of Pennsylvania, Philadelphia, PA. pp 184-5, 2008.

Andrew Lucia

- 2008 Levy, A. "**The Protection Papers; Borders, Boundaries, and Blockades in the Art of Dennis Oppenheim**" Via: Occupation, PDSP/School of Design, University of Pennsylvania, Philadelphia, PA. pp 60-65, 2008. Collaboration with Aaron Levy; temporal investigations/reconstructions and renderings by Andrew Lucia.
- 2006 Lucia, A. Studio projects featured in Work 2005/2006. University of Pennsylvania School of Design, Dept of Architecture. pp 3-4, 10, & 19-20, 2006.

Peer Reviewed Publications

- 2011 (forthcoming) Lucia, A et al. "**Rethinking Xenakis and the Role of Information in the Immediate Production of Architectural Affects**" Proceedings of the Music in Architecture – Architecture in Music Symposium, University of Texas at Austin. (forthcoming October, 2011).
- 2011 (forthcoming) Lucia, A et al. "**Memory, Difference, and Information: Generative Architectures Latent to Material & Perceptual Plasticity**" 2011 15th International Conference on Information Visualization, IEEE Computer Society. London. (forthcoming July 2011).
- 2011(in prep) Lucia, et al. "**Scale-free detection of motility and difference within dynamic biological systems using Information Theory and Rhythm Analysis.**" (in prep for the Integrated Biology).
- 2010 Lucia, A et al. "**Pitch to Rhythm :: Rhythm to Pitch**" Leonardo Music Journal, MIT Press. December 2010, Vol. 20, Pages 97-97. Published Online 12 November 2010. http://www.mitpressjournals.org/doi/abs/10.1162/LMJ_a_00025
- 2009 Savig, Lucia, Tamby, Sabin and Jones. "**Architecture + Cell Biology: Computational Images of Dynamic Cell Systems**" in the Mellon Graduate Student Conference, Objects of Knowledge, Objects of Exchange, Harvard University, Cambridge, MA, USA. Apr 3-4, 2009.
- 2009 Klinger, Lucia, Sweeney, Sabin and Jones. "**Cellular Potts Modeling of Matrix-Dependent Endothelial Cell Networking**" Biophysical Society 53rd Annual Meeting, Abstract: Bacteria & Motile Cells: Mechanics, Motility, & Signal Transduction. 2009.
- 2008 Klinger, Lucia, Sweeney, Sabin & Jones. "**Mathematical Modeling of Matrix-Dependent Endothelial Cell Networking in 4-D**" American Society For Cell Biology Annual Meeting, Abstract: Bioinformatics/Biological Computing. 2008.

Exhibitions: Self/Collaborative

- 2009, July-Sept **The Vitreous: of Eye and Optics**, juried exhibition featuring *Pitch to Rhythm :: Rhythm to Pitch*. Esther M. Klein Gallery. Philadelphia, PA.
- 2008, May **Bentley Showcase**. featuring work of PennDesign Graduate students. University of Pennsylvania School of Design. Philadelphia, PA.
- 2008, April **Fiber**. Curated by Sabin, Beesley and Jones, featuring work by PennDesign graduate students, F.U.E.L. Collection, Philadelphia, PA, USA.

Projects Published, abridged: [Projects designed under employment, articles by others]

- 2009 (Designed) **Ground Substance** [Sabin+Jones LabStudio] Design/Project Management
-Sabin, Jones, Lucia, Fierro. The American Journal of Pathology, Vol. 176, No. 2, Feb. 2010. (**Ground Substance** featured on cover)
- 2008 (Designed) **Branching Morphogenesis** [Sabin+Jones Labstudio] Lead Design/Project Management
-Dumiak, Michael. "**75,000 cable ties used to create 'lung art'.**" Wired UK, June, 2010.
-Sabin, Jones, Lucia, Fierro. "Special Issue: 2009 International Science and Visualization Challenge." Science Magazine, Vol. 327, No. 5968, p. 1 [featured on cover] & p. 945, Feb. 19, 2010.
-Sabin, Jones, Lucia, Fierro. "**Branching Morphogenesis.**" SuckerPUNCH Daily. Published online January 2010. <http://www.suckerpunchdaily.com/2010/01/24/branching-morphogenesis/#more-5774>
-Peters, Terri. "**Jenny Sabin Draws Connections Among Computer Science, Architecture and Cellular Biology**" Mark Magazine "Portrait Section," No. 23, pp. 200-205, Nov/Dec. 2009.
-Wong, Kenneth. "**Reconstructing Nature**" Computer Graphics World Vol. 32: Issue 10, Oct. 2009. www.cgw.com/Publications/CGW/2009/Volume-32-Issue-10-Oct-2009-/Reconstructing-Nature.aspx
- "**Feature: Green Architecture**" A+U, Branching Morphogenesis featured in "Currents" section. No. 461, p. 8, Apr. 2009.
-Nikolovska, Lira. "**The Design + Computation Gallery at Siggraph 2008**" Journal of Mathematics and the Arts, Taylor & Francis, pp. 41-55, Mar. 2009.
- Abbott A. "**Science arts centre opens in a blaze of colour: Gallery launches Linz as European City of Culture**" Nature, Published online Jan. 5, 2009. <http://www.nature.com/news/2009/090105/full/news.2009.0.html>
- "**Siggraph 2008 Electronic Art and Animation Catalog: Art & Design Galleries**" Association for Computing Machinery, Inc., New York, NY, USA. 2008.

Andrew Lucia

- 2008 (Designed) **Ordos, Mongolia Villa** [Keller Easterling Architect] Project Team
-**10x10.3**, featuring Ordos Pavilion. Phaidon Press. 2009.
- 2007 (Designed) **Pavilion at Museum für Angewandte Kunst** [Barkow Leibinger Architect] Project Concept and Design
-Cachola Schmal, P. **Der Pavillon – Lust und Polemik in der Architektur**. Featuring DAM-Pavilion, Frankfurt/Main, Germany. Hatje Cantz, Ostfildern & DAM, Frankfurt. 2009.

Exhibitions: [Projects designed under employment]

- 2010 **Working Prototypes: Design, fabricate and test**, Nonlinear Systems Biology and Smart Geometry Design Cluster [Sabin+Jones LabStudio], Design Hub Barcelona (DHUB), Barcelona, Spain.
- 2009 (Designed) **Ground Substance** [Sabin+Jones LabStudio] Design/Project Management
-**Fertile Ground exhibition**. Philadelphia, PA. Oct. 2009.
-**Siggraph 2009 Generative Fabrication Galleries**. New Orleans, LA. Aug. 2009.
- 2008 (Designed) **Branching Morphogenesis** [Sabin+Jones LabStudio] Lead Design/ Project Management
-**Processing; Collection**. A curated selection of Processing Software by Ben Fry and Casey Reas. Published online Oct. 2009. <http://www.processing.org/exhibition/>
-**Ars Electronica 2009 inaugural exhibition**. Ars Electronica. Linz, Austria. 2009-10
-**Siggraph Evolve 2008 Exhibition**. Los Angeles, CA. Aug. 2008.
- 2008 (Designed) **Ordos, Mongolia Villa** [Keller Easterling Architect] Project Team
Thirteen New York Architects Design for Ordos. Architecture League New York. New York, NY. 2008.
- 2008 (Designed) **Chromazon** [su11 architecture+design] Project Design Team
-**YAP 10th Anniversary Review**, featuring *Chromazon* for YAP. P.S.1. MoMA. New York, NY. June-Oct. 2009.
-**YAP Summer Program Showcase**, featuring *Chromazon* for YAP. MoMA. New York, NY. 2008.
- 2007 (Designed) **Pavilion at Museum für Angewandte Kunst** [Barkow Leibinger Architects] Project Concept and Design
-**Der Pavillon – Lust und Polemik in der Architektur**. Deutsches Architekturmuseum, Frankfurt am Main, Germany. 2009, July-Sept.
-SAM exhibition **Re-Sampling Ornament**, featuring *Pavilion at Museum für Angewandte Kunst*. On tour at Arkitektumuseet, Stockholm, Sweden. May-Aug 2009.
-**an atlas of fabrication, barkow leibinger, berlin**, featuring *Pavilion at Museum für Angewandte Kunst*. Architectural Association School of Architecture, London. Feb 27-Mar 27, 2009.
- **Re-Sampling Ornament**, featuring *Pavilion at Museum für Angewandte Kunst*. Swiss Architecture Museum, Basel, Switzerland. 2008-09.
- 2007 (Designed) **Knot Garden** [Ruy Klein Architects] Project Lead Design
-**YAP 10th Anniversary Review**, featuring *Knot Garden* for YAP. P.S.1. MoMA. New York, NY. June-Oct, 2009.
-**YAP Summer Program Showcase**, featuring *Knot Garden* for YAP. MoMA. New York, NY. 2007.

Awards and Distinctions

- 2010-2011 Artist in Residence, Breadboard Gallery and NextFab Studio, Philadelphia, PA [Sabin+Jones LabStudio]
- 2010 First Prize in Illustration, 2009 Science/NSF International Science and Engineering Visualization Challenge, awarded to *Branching Morphogenesis* [Sabin+Jones LabStudio]
- 2008 Arthur Spayd Brooke Memorial Prize, Silver Medal. For distinguished work in architectural design
- 2007 First Place, E. Lewis Dales Memorial Traveling Fellowship
- 2007 Samuel K. Schneidman Fellowship awarded on the basis of demonstrated excellence
- 2007 James Smyth Warner Memorial Prize for highest record in required studio courses
- 2006 Melhorn Scholarship for outstanding work in the theory sequence
- 2006 Prowler Memorial Prize for outstanding record in sustainable design
- 1997-2001 Dean's List, University of Minnesota

Scholarly Service

- Mar, 2010 Tutor, **Smart Geometry Workshop** Barcelona 2010. Workshop Cluster: *Nonlinear Systems Biology*, Sabin+Jones LabStudio.
- 2009- Extramural advisor to Joel Ong, Masters of Science (Biological Art) candidate at **Symbiotica**, the University of Western Australia, School of Anatomy and Human Biology.

Andrew Lucia

Grants Awarded

- 2011 **Mellon Grant** for *Biennale*, Wendy Steiner (PI & author of Libretto) and Paul Richards (Composer) [Andrew Lucia Design and Research; lead design of visual production], 2011.
- 2010 **EFRI-SEED: Energy Minimization via Multi-Scalar Architectures: From Cell Contractility to Sensing Materials to Adaptive Building Skins**. Shu Yang (PI), Nader Engheta, Jan Van der Spiegel, Peter Lloyd Jones & Jenny Sabin (co-PIs), Andrew Lucia (senior personnel), University of Pennsylvania [\$2.0 Million] [Sabin+Jones LabStudio].
- 2009 Wharton WIMI Grant, University of Pennsylvania [\$5,000] [Sabin+Jones LabStudio].

Lectures

- July, 2010 Lecture, "Scale-free Analysis of Dynamic Data Sets: Difference, Uncertainty and Perception," joint lecture by Sabin+Jones and Lucia for **The Wharton Advanced Management Program**, University of Pennsylvania.
- Feb, 2010 Public Lecture, "Nonlinear Systems and Design," joint lecture by Sabin+Jones and Lucia for **The Wharton Interactive Media Initiative (Penn Interactive Media Colloquium)**, University of Pennsylvania.