

EDUCATION

University of Cambridge, UK (Sidney Sussex College)

Doctor of Philosophy in Architecture, *Candidate* (anticipated 2020)

(Cambridge International Scholarship / Patron HRH The Prince of Wales)

Dissertation: *Fold-Finding: Expanding the Discourse of Folded Structures*

Keywords: curved crease origami, foldable composites, structural morphology

Supervisor: Michael Ramage Advisor: Allan McRobie

Massachusetts Institute of Technology, Cambridge, MA

Master of Science in Architecture Studies, Design and Computation, 2011

(Full Tuition Merit Scholarship / GPA 5.0)

Thesis: *A Pedagogical Guide into Trigonometric Transformations*

Keywords: mathematics, computational geometry, epistemology

Advisor: George Stiny Reader: Nader Tehrani

Rensselaer Polytechnic Institute, Troy, NY

Bachelor of Architecture, Minor in Studio Arts, 2009

(Rensselaer Medalist)

Thesis: *Having a Conversation with Architecture*

Keywords: second-order cybernetics, interactive architecture, pneumatic structures

Mentor: Ted Krueger

ACADEMIC

Clemson University, July 2014 – Present

Assistant Professor of Architecture (Tenure-Track), June 2015 – Present

Visiting Lecturer, School of Architecture (Full-Time), July 2014 – May 2015

COURSES

Arch 2510: Architectural Foundations 1, Fall 2014, 2015, 2016 (Core design studio)

Arch 2511: Architectural Foundations 1 Laboratory: Digital Tooling, Fall 2014 - 2017 (Core lab)

Arch 8100: Visualization and Representation 1, Fall 2015, 2016 (Required M.Arch. course)

Arch 2520: Architectural Foundations 2, Spring 2015, 2016, 2017 (Core design studio)

Arch 2521: Architectural Foundations 2 Laboratory: Digital Tooling 2, Spring 2015 - 2018 (Core lab)

Arch 8110: Visualization and Representation 2, Spring 2016 (Required M.Arch. course)

Arch 4990 / 6990: Composites Manufacturing for Architectural Applications, Spring 2017 (Elective)

Industry supported elective with donated materials

SERVICE

Editor of *Poché* -Clemson University Architecture's student publication, Spring 2016

Paperback: 220 pages, 234mm x 160mm

Clemson University Architecture (January 2017)

Poché is the "stuff" between the walls and floors. In plans and sections it is usually filled in or hatched. However, there is a lot that goes into that mysterious hatch. This publication literally cuts through required courses at Clemson University Architecture, as a means to pause and reflect.

Coordinator of 2nd Year Undergraduate Studios, Spring 2017

Member of the University's STEAM Task Force, Fall 2014 - Fall 2017

Member of the University's STEAM Collective (Nine Member Interdisciplinary Academic Team), Fall 2015 - Present

Clemson Thinks 2 Instructor, Fall 2015 - Present

Member of the Digital Ecologies Certificate Program, Fall 2016 - Present

Member of Teaching Stream: Design, Fall 2016 - Present

Faculty and Student Advisory Committee (Second Year Faculty Representative), Fall 2015 - Spring 2016

Member of the Studio Learning Cultures Task Force, Fall 2015 - Spring 2016

Member of the Search and Screen Committee for Endowed Chair / Director of CU-iMSE, Fall 2016 - Spring 2018

Member of the NAAB Lee Hall Exhibit Committee, Spring 2016 - Spring 2017

On the doctoral committee of Mostafa Hashem, Spring 2015 - Spring 2018

Advising 25-30 undergraduate students, Fall 2015 - Present

Southern Polytechnic State University, July 2011 – May 2014
Assistant Professor of Architecture (Tenure-Track)

COURSES

Design Foundations 1, Fall 2011, 2012, 2013 (Core design studio)
Design Communications 1, Fall 2012 (Core elective)
Design Foundations 2, Spring 2012, 2013, 2014 (Core design studio)
Design Communications 2, Spring 2014 (Core elective)
Constrained to be Unconstrained, Spring 2012, 2013 (Advanced elective)
Environmental Technologies 1, Fall 2011, 2013 (Core elective)

SERVICE

Chair of Lecture, Workshop and Exhibition Series, Fall 2012 - Spring 2014
Coordinator of 1st Year, Fall 2012 - Spring 2014
Coordinator of Digital Fabrication Lab, Fall 2011 - Spring 2014
Member of University Information Technology Advisory Committee, Fall 2012 - Spring 2014
Member of Academic Council, Fall 2012 - Spring 2014
Member of Research Advisory Committee, Fall 2012 - Spring 2014
Member of Curriculum Development Committee, Fall 2012 - Spring 2014
Library Representative for the Architecture Program, Fall 2011 - Spring 2014
Member of Search and Screen Committee for Professor of History and Theory, Spring 2012
Co-Chair of Search and Screen Committee for Supervisor and Shop Manager, Spring 2012

Boston Architectural College, September 2010 – May 2011
Instructor, School of Architecture

COURSE

trans-FORM: Tacit to Explicit, Fall 2010, Spring 2011 (Advanced elective)

Massachusetts Institute of Technology, September 2009 – May 2011
Teaching Assistant, Department of Architecture

COURSES

MArch Level III Option Studio, Professor Andrew Scott (Director of MArch Program) Spring 2011
Digital Fab. & Construct: Apps Workshop, Professor Dennis Sheldon (Gehry Technologies) Fall 2010
MA Level I Core Studio, Professor Ana Miljacki (Project_) Spring 2010
MArch Level II Core Studio, Professor Nader Tehrani (NADAAA) Fall 2009

RESEARCH PRACTICE

Design Topology Lab, May 2009 – Present, *Founder*

"...the first research practice dedicated to the ontology of space defined by mathematics."
-Archinect.com, August 18, 2011

Research Inquiry 01: Deployable structures with foldable composites
Industry sponsors:
Composites One, Vectorply, Polynt-Reichhold, United Initiators, Windsor Fiberglass

Research Inquiry 02: Robotically carved, mathematically defined, stone structures
Industry collaborators:
Quarra Stone Company in Madison, WI (Jim Durham, Alex Marshall, Brian Smith)
Arup in Los Angeles, CA (Bruce Danziger, Allan Olson)

Artistic Explorations: Inhabitable drawing installations
Installations:
Boundaries (2012), Boundaries 02 (2013), Line 01 (2013)

PROFESSIONAL

Acconci Studio, July 2009 - August 2009, Designer
Ted Krueger, November 2008 - August 2009, Research Collaborator
Experimental Media and Performing Arts Center, May 2008 - October 2008, Curator / Designer
Gage Clemenceau Architects, March 2008, Facade Researcher
Acconci Studio, May 2007 - August 2007, Intern Designer
Carlos Zapata Studio, May 2006 - August 2006, Intern

AUTHORED BOOKS

Études for Architects by Joseph Choma

Hardcover and paperback: 270 pages, 190 illustrations, 234mm x 156mm, Routledge (May, 2018)
ISBN: 978-1-138-63223-3 (hbk)
ISBN: 978-1-138-63224-0 (pbk)
ISBN: 978-1-315-20837-4 (ebk)

Organized around a series of pedagogical exercises, this book provides a visual journey through a series of games architects can play as a means to design. Aimed specifically at beginner design students, learning objectives include: computational thinking and making, introduction to design as an iterative, reflective, and rigorous process, ideas of continuity and discontinuity, and understanding the bias and constraints of analog and digital tooling. The text is simple and straightforward to understand and in addition the author draws explanatory diagrams to elaborate on each exercise's description. He also includes visually compelling student work to provide insight into the possibilities of each exercise. Finally, the book includes eighteen case studies from Europe, the USA, Mexico, and Asia to inspire and inform.

REVIEWS

"This book offers a critical alternative to oppositional thinking by providing a rule-based intellectual construct through which many generative and representational media are able to converse. In a world that has already internalized computational potentials and imperatives, this book helps to demystify the apparent complexities of technical procedures by bringing a renewed focus on the conceptual."

-Nader Tehrani (Dean and Professor, Irwin S. Chanin School of Architecture at The Cooper Union)

"*Études for Architects* is a timely manual for simplifying complexity in geometric and parametric form/space making. Here analog and digital techniques are presented as of equal value in establishing a rule-based design process that encourages speculation and innovation. The how to and why approach is generously illustrated with exemplary student work (drawings and models) and supported by contemporary building case studies that move us from the abstract to possible realities. A must have operational guide for students, teachers, and designers for generating elegance in form."

-Marlon Blackwell, FAIA (E. Fay Jones Distinguished Professor at the University of Arkansas)

"Albers grounds art and design education in ongoing experience – 'To start out by "playing" develops courage, leads in a natural manner to an inventive way of building and furthers . . . [design] discovery.' Choma's *études* do the same with equal if not greater force for today's design studio – with computers and, I am delighted to add, without. This is a marvelous achievement."

-George Stiny (Professor of Design and Computation at the Massachusetts Institute of Technology)

Morphing: A Guide to Mathematical Transformations for Architects and Designers by Joseph Choma

Hardcover: 232 pages, 886 illustrations, 220mm x 220mm, Laurence King Publishing (January, 2015)
ISBN: 978-1-78067-4-131

Cylinders, spheres and cubes are a small handful of shapes that can be defined by a single word. However, most shapes cannot be found in a dictionary. They belong to an alternative plastic world defined by trigonometry: a mathematical world where all shapes can be described under one systematic language and where any shape can transform into another.

This visually striking guidebook clearly and systematically lays out the basic foundation for using these mathematical transformations as design tools. It is intended for architects, designers, and anyone with the curiosity to understand the link between shapes and the equations behind them.

Digital companion website and tool: www.morphingbook.com

Morphing Tool, designed and developed in collaboration with Xiaoji Chen (User Experience Designer, Microsoft)

REVIEWS

"While the classic platonic shapes have a dictionary definition, the rise of parametric design has seen an infinity of new plastic mathematical forms around that have yet to be named. Joseph Choma, who graduated in computation at MIT, has thoughtfully managed not only to name but to ontologically order them into 13 mathematical 'transformations', so that seemingly random 3D forms can be broken down into their constituent parts. As if that isn't enough he also provides the trigonometric equations that define those transformations. This is a technical tome less for those thinking traditionally about 'form follows function' and more for those that think 'form follows $f(x)$ '."

-Jan-Carlos Kucharek (Senior Editor, Royal Institute of British Architects Journal)

"Architectural design books that tackle the tough problem of the relationship of mathematics to architecture are few and far between. Even less frequent are those titles written in a clear and concise manner that then makes them easy to use.

The relation of geometry to design was introduced by writers like Matila Ghyka. Mario Salvadori, best known for his books on structures, delved broadly into the theme of *Mathematics in Architecture*. Years later, *Architectural Geometry*, furthered this discussion with a textbook by Helmut Pottmann, Andreas Asperl, Michael Hofer and Axel Kilian on geometric computing and its uses in architectural design.

Less wordy and much simpler in format, *Morphing: A Guide to Mathematical Transformations for Architects and Designers* addresses trigonometry as a tool in architectural design. As visual learners, architects think in images not formulas, making *Morphing* an ideal resource . . . easy to use and a real asset for the architectural designer."
-Barbara Opar (Architecture Librarian, Syracuse University Libraries)

IN THE NEWS (ONLINE / PRINT)

Five page book review in Journal of Mathematics and the Arts, October 24, 2016

Book review in Architectural Record, December 01, 2015

Book review in Architecture NZ Magazine, August 21, 2015

Book review in ARLIS/NA, July 25, 2015

Book review in RIBA Journal, May 13, 2015

Featured on RPI Alumni News, May 06, 2015

Book featured on ArchDaily, March 23, 2015

Book featured on Archinect, March 20, 2015

Interview published on Archinect, Mark 08, 2015

Book featured on suckerPUNCH, February 16, 2015

Unfolding Polyhedra: A Designer's Approach (Working title) by Joseph Choma

Work in progress

Book type: design guide / instructional catalog

Page count: 224 pages

When a polyhedron transforms, how does its unfolding pattern transform? In 1975, Geoffrey C. Shephard posed the question, "Does every 3-polytope possess a net?" This guide does not attempt to prove this open problem, but develops an intuitive correlation between these two worlds. Drawing relationships between deformed / irregular polyhedra and their flattened unfolded state. The examples within this book show strategies for avoiding overlapping while maintaining an optimized packing density. Within the book, each two dimensional crease pattern is documented adjacent to its three dimensional polyhedron. It is intended for architects, designers, and anyone interested in the construction of shapes with flat sheet material.

Shaping (Working title) by Joseph Choma

Work in progress

Book type: Children's Picture Book (Ages 7-9)

Page count: 30 pages

Within this picture book, a sphere transforms into a circle, which becomes a cone. The cone is then a triangle, which becomes a pyramid. The pyramid is then a square, which becomes a cube. After the cube is opened, it is a space similar to the room you are in now. Throughout this visual journey, shapes are juxtaposed to familiar objects. Projective geometry is the common transformation mechanism. It is intended for children, ages 7 to 9.

PATENT PENDING

Invention: *Foldable Composite Structures*

Inventor: Joseph Choma

Provisional application for U.S. Letters Patent bearing U.S. Serial No. 62/655,978

Filed in the U.S. Patent and Trademark Office on April 11, 2018

Within the application, composite structures and methods for fabricating composite structures are provided. For example, a method comprises selectively applying a polymer to a sheet of composite material to define a plurality of hinges; allowing the polymer to cure; and folding the sheet of composite material along the hinges to form the composite structure. As another example, a method comprises laying out flat a sheet of composite material; masking a plurality of hinges on the sheet using a masking material; applying a polymer to a sheet face; curing the polymer; removing the masking material; and folding the sheet along the hinges to form the composite structure.

An exemplary composite structure comprises a planar sheet of composite material folded to define a plurality of planar segments and a plurality of hinges. A portion of the hinges form peaks and the remainder of the hinges form valleys. The hinges are defined between adjacent planar segments.

AWARDS

2018–19 Pennell Award for research and design building, **Awarded: \$22,062**

Research Proposal: *Paper Folding to Foldable Composites*

PI (100%): Joseph Choma, Assistant Professor of Architecture, Clemson University

Best Presentation Award, 2018 Sidney Sussex Graduate Conference, University of Cambridge, UK

Presentation: *Paper Folding to Foldable Composites*

2013 Emerging Voices Award from the AIA Atlanta

Each year, the AIA Atlanta and Young Architects Forum of Atlanta recognizes one architect/designer in Atlanta.

IN THE NEWS (ONLINE)

Featured on suckerPUNCH, February 02, 2013

Featured on Archinect and Bustler, January 24, 2013

INDUSTRY SPONSORED RESEARCH AGREEMENT

Sponsor: Applied Structural Materials, LLC, Fall 2018–19, **Requested: \$156,810**

Research Project: *Composite Structural Panel*

PI (100%): Joseph Choma, Assistant Professor of Architecture, Clemson University

***Status is pending**

SMALL GRANTS

Clemson Architectural Foundation Grant, Fall 2016, **Awarded: \$1,500**

Council for the Arts at MIT "Special" Director's Grant, Spring 2011, **Awarded: \$1,000**

Council for the Arts at MIT Grant, Spring 2010, **Awarded: \$2,000**

Council for the Arts at MIT Grant, Fall 2009, **Awarded: \$2,000**

NATIONAL RESEARCH COMPETITION

Composites in Architecture Design Challenge, ACMA, Spring 2017, **First Place**

A national competition presented by the American Composites Manufacturers Association (ACMA).

Research Project: *Manifold: Expanding the possibilities of composites manufacturing through folding*

Role: Faculty Advisor / Principal Investigator

Students: Caleb Roberts, Sarah Pyne, Tyler Rodgers, Christian Bravo, Brent Sosebee, and R.J. Wilson

IN THE NEWS (ONLINE)

Compared to a new technology on Composites World Magazine, October 30, 2017

Complete story on Newsstand at Clemson University, May 22, 2017

Featured on Composites World Magazine, May 10, 2017

Featured on Composites Manufacturing, May 8, 2017

Featured on Innovation in Textiles, April 28, 2017

Featured on Inside Composites, April 28, 2017

Featured on Building Enclosure Magazine, April 27, 2017

Composites in Architecture Design Challenge, ACMA, Spring 2017, **Third Place**

A national competition presented by the American Composites Manufacturers Association (ACMA).

Research Project: *Columns of Double Curvature: Integrating weaving into ruled surfaces*

Role: Faculty Advisor / Principal Investigator

Students: Harrison Polk, Diego Bazzani, Heather Kimbrell, Erin Doering, Will Franzreb, and Carrie Bull

PAPERS (BLIND PEER REVIEWED)

Choma, Joseph. 'Sketching with Mathematics.' *Virtual + Actual: Process and Product of Design (Design Communication Association)*. [Accepted, forthcoming October 2018.]

The paper was one of only nine papers (out of 154 submissions) to received a perfect peer reviewed score by all three blind peer reviews.

Choma, Joseph. 'Foldable Composites for Architectural Applications.' *Origami 7*. [Accepted, forthcoming September 2018.]

The Origami 7 book will be published by Tarquin Publishing to coincide with the the 7th International Meeting on Origami in Science, Mathematics and Education (7OSME) at the University of Oxford, UK (Mathematical Institute and Department of Engineering Science).

Choma, Joseph. 'Structural Sculpting: A Designer's Approach to Robotically Carved Stone Structures.' *2018 Proceedings of the Symposium on Simulation for Architecture and Urban Design*, 2018: 197–204.
Impact ranking #10 for architecture publications (Google Scholar)

Choma, Joseph. 'Objects to Atmosphere.' *Material Vocabularies (International Journal of Interior Architecture and Spatial Design, Volume 4, 2016)*: 22–25.
23% acceptance rate

Choma, Joseph. 'Boundaries 02.' *BLUR d3:dialog (International Journal of Architecture and Design, 2016)*: 137–142.

Choma, Joseph. 'Digital Fabrication + Hand Craft.' *SIGRAFI 2010 Proceedings*, 2010: 146–149.
Cited within five papers (Google Scholar)

INVITED PUBLICATIONS

Choma, Joseph. 'Contested Boundaries: Crafting Texture.' *Performative Materials in Architecture and Design*. Chicago: University of Chicago Press, 2013: 158–159.
Invited by Rashida Ng (Associate Professor, Temple University) and Sneha Patel

Choma, Joseph. 'T-H-I-C-K-E-N-I-N-G.' *Mathematics: From the Ideal to the Uncertain (The Cornell Journal of Architecture 9, 2012)*: 191–199.
Invited by Caroline O'Donnell (Director of M.Arch. Program, Cornell University)

IN THE NEWS (ONLINE)

Journal featured on ArchDaily, June 06, 2013

Choma, Joseph. 'Contested Boundaries: Packing Instability.' *Testing to Failure*. SA+P Press, 2011: 158–159.
Invited by Nader Tehrani (Head of the Department of Architecture, Massachusetts Institute of Technology)

Choma, Joseph. 'Contested Boundaries: Material Translation.' *Machinic Processes Architecture Biennial Beijing 2010 Students Catalog*. 2010
One of four projects selected to represent MIT in the Architectural Biennial Beijing.

PROJECTS PUBLISHED (BLIND PEER REVIEWED)

Choma, Joseph. 'Sketching with Mathematics: Variations of a Pavilion.' *Order; Disorder (Scroope Cambridge Architecture Journal Issue 27, 2018)*: 155–158.

Choma, Joseph. 'Contested Boundaries.' *ACADIA 2010 Catalog*, 2010: 146–149
Research on *Packing Instability* and *Crafting Texture* published.

Choma, Joseph. 'Exploding Volume Packing' *RUNE Journal 31*, 2010: 33
The MIT Journal of Arts and Letters showcases vault packing drawing.

PROJECTS PUBLISHED WITHIN INTERNATIONAL MAGAZINES (PRINT)

Design Exchange Magazine, UK, Wide Eyed, 90–91, August 2009
Video exhibited at the *VISIONS Beyond Media Festival* in Florence was mentioned.

eVolo Magazine, USA, Architecture Redefined, 144–145, July 2009
Design machine housing concept published.

Plan Magazine, Ireland, "Is the new Frank Gehry on...", 89–91, September 2007

Article previewed on the cover of the magazine. Brief interview and showcased two images of a design project.

PROJECTS INCLUDED IN OTHER PUBLICATIONS

Glimpse, Clemson University's magazine of research and creative discovery, Page 67, Fall 2015

Introducing Joseph Choma to the Clemson community.

Design for the Children Book, Play and Order, Page 40, May 2010

Competition entry for a pediatric clinic in East Africa was published.

EMPAC OPEN Book, Architecture and Design Exhibition, 60–61, Fall 2008

Exhibit design published in this small promotional book.

Rensselaer Magazine, 2008 EOY Award, Page 53, Fall 2008

Winning built chair design shown in an article.

Rensselaer Magazine, Change the World Challenge Begins, Page 9, Fall 2005

The five winners of a university wide competition were mentioned.

Rensselaer Magazine, Students Design Homes for Haiti, Page 5, Winter 2004

Winners of the student design competition were mentioned.

PUBLIC ART INSTALLATION

Lowry Hall Courtyard, Clemson University, Clemson

Chakrasana, August – September 2017

Designer / Principal Investigator: Joseph Choma

Team: William Marshall, Claire Hicks, Sarah Nail, Joe Scherer

IN THE NEWS (ONLINE)

Chakrasana featured on Archinect, September 05, 2017

Fabrication process featured on Archinect, July 11, 2017

SOLO EXHIBITIONS

951 Boylston Street Lobby, Boston Architectural College, Boston

Architecture + Mathematics, November – February 2016

Barbara Archer Gallery, Atlanta

Object to Atmosphere, January – March 2013

IN THE NEWS (ONLINE)

Boundaries 02 (Drawing) featured on suckerPUNCH, February 02, 2013

Boundaries 02 (Drawing) featured on Archinect and Bustler, January 24, 2013

Architecture Exhibition Gallery, Southern Polytechnic State University, Marietta

Boundaries, January – February 2012

IN THE NEWS (ONLINE)

Boundaries (Drawing) featured on suckerPUNCH, March 12, 2012

Article written about installation on Designboom Magazine, March 01, 2012

Boundaries (Drawing) featured on Archinect and Bustler, February 07, 2012

Emerging Technologies Gallery, MIT Museum, Cambridge

Design for an Ideal Polling Booth, April – May 2010

Funded in part by two Council for the Arts at MIT Grants

Part of the 2010 Cambridge Science Festival

IN THE NEWS (ONLINE)

Interviewed on the Cambridge Science Festival Blog, April 20, 2010

Featured on MIT's homepage (www.mit.edu), *Today's Spotlight*, March 28, 2010

INVITED GROUP EXHIBITIONS

Nicholls & Clarke Lofts, 3/10 Shoreditch High Street, London, UK
ARCSOC Summer Show 2018 (University of Cambridge), July 2018

Miller Gallery, Carnegie Mellon University, Pittsburgh
Designing the Computational Image/Imagining Computational Design, September - November 2017

IN THE NEWS (ONLINE)

Featured on CreativeApplications, November 21, 2017

Promenade Building, Atlanta
Southern Fried Supernova, October 2013

IN THE NEWS (ONLINE)

Line 01 (Drawing) featured on Archinect and Bustler, October 21, 2013

Michael C. Carlos Museum at Emory University, Atlanta
Veneralia: Night of the Black Jaguar, May 2012

Swan Coach House Gallery, Atlanta
Architects as Artists, January – February 2012

Works, San José
Iraqi Memorial, November – December 2011

Project Space, The Elizabeth Foundation for the Arts, New York
Iraqi Memorial, September – October 2011

Department of Architecture, Massachusetts Institute of Technology, Cambridge
MIT 150, DCG Exhibit: Things to Think with, April – May 2011
Funded in part by a Council for the Arts at MIT "Special" Director's Grant

McCormick Gallery, Boston Architectural College, Boston
Build Boston, Change/Order Exhibit, November – December 2010

798 Space, Beijing, China
4th Architectural Biennial Beijing 2010, Machinic Processes, October 2010

Sheppard Fine Arts Gallery, University of Nevada, Reno
Iraqi Memorial, February – March 2010

Protospace, Bangalore, India
Spirited Caravans, Re-imagining Bangalore's Outdoors, July 2009

ARTWERX Gallery, Brighton, UK
architectuREdefined, February 2009

GROUP EXHIBITIONS (PEER REVIEWED)

AIA Conference on Architecture 2017, Orlando
Composites Pavilion, April 2017

IN THE NEWS (ONLINE)

Featured on Composites World Magazine, May 10, 2017

Featured on Composites Manufacturing, May 8, 2017

Featured on Innovation in Textiles, April 28, 2017

Featured on Inside Composites, April 28, 2017

Featured on, Building Enclosure Magazine, April 27, 2017

McCormick Place Lakeside Center, Chicago
The Future of Composites in Construction | JEC Group, June 2017

School of Architecture, Pratt Institute, Brooklyn
ACADIA 2010's Peer Reviewed Exhibition, October 2010

Tyler School of Art, Temple University, Philadelphia
Input_Output Exhibition, October – November 2010

Stazione Leopolda, Florence, Italy
VISIONS Beyond Media Festival, Wide Eyed, July 2009

INVITED LECTURES

Keynote Speaker for the first FAB (Future of Architecture and Building) Biennale in Mumbai, India
Foldable Composites, [forthcoming December 1, 2018]

Sasa Zivkovic's Digital Fabrication Seminar, Cornell University, Ithaca
Materializing Mathematics, October 31, 2017 (Skype lecture)

Composites World Magazine, Denver
CW Talks explores foldable composites with Joseph Choma, July 27, 2017 (Podcast interview)

Aidan Ackerman's Generative Design Course, Boston Architectural College, Boston
Designing an Understanding, November 4, 2015

Fall 2014 Lecture Series, School of Architecture, Georgia Institute of Technology, Atlanta
Designing an Understanding, November 7, 2014

IN THE NEWS (ONLINE)

Lecture promoted on suckerPUNCH, October 31, 2014

The Computation Group Forum, Massachusetts Institute of Technology, Cambridge
Designing an Understanding, October 24, 2013

Museum of Design Atlanta's Field Trip Series, Barbara Archer Gallery, Atlanta
Object to Atmosphere, March 7, 2013

Spring 2012 Lecture Series, Dept. of Architecture, Southern Polytechnic State University, Marietta
Boundaries, January 23, 2012

The Computation Group Forum, Massachusetts Institute of Technology, Cambridge
Designing Pedagogy, November 4, 2011

Takehiko Nagakura's Design Scripting Course, Massachusetts Institute of Technology, Cambridge
For Loops, March 3, 2011

2010 Cambridge Science Festival, MIT Museum, Cambridge
Design for an Ideal Polling Booth, April 25, 2010

CONFERENCE PRESENTATIONS (BLIND PEER REVIEWED)

DCA 2018, Department of Design & Environmental Analysis, Cornell University, Ithaca
Sketching with Mathematics, [forthcoming October 2018]

7OSME, Mathematical Institute and Department of Engineering Science, University of Oxford, UK
Foldable Composites for Architectural Applications, [forthcoming September 2018]

SimAUD2018, Faculty of Architecture and the Built Environment, Delft University of Technology, Delft
Structural Sculpting: A Designer's Approach to Robotically Carved Stone Structures, June 6, 2018

2018 Sidney Sussex Graduate Conference, University of Cambridge, UK
Paper Folding to Foldable Composites, February 17 2018

Computational Design: Practices, Histories, Infrastructures, Carnegie Mellon University, Pittsburgh
Sketching with Mathematics: Variations of a Dancing Torus, October 7, 2017

ACADIA 2010, School of Architecture, The Cooper Union, New York
Contested Boundaries, October 23, 2010

Input_Output Symposium, Tyler School of Art, Temple University, Philadelphia
Contested Boundaries, October 8, 2010

MIT DesComp 2010 Symposium, Massachusetts Institute of Technology, Cambridge
Exploding: Vault Packing, February 6, 2010

CONFERENCE PANEL DISCUSSIONS

American Society for Cybernetics 2017 Conference, Salem
A Conversation about Design and Designing with a Conversation, August 11, 2017

Chaired and organized the panel, which was a tribute to Ranulph Glanville
Panel included: Mark Goulthorpe (MIT), Patrick Harrop (Laurentian University), Ted Krueger (RPI),
Nathan Felde (Northeastern), Daisy Ames (Columbia)

INTERNATIONAL DESIGN COMPETITIONS

Pamphlet Architecture 33 Competition, Princeton Architectural Press, Spring 2012, **Shortlisted Entry**
Nominated by a previous Pamphlet Architecture author.

Design for the Children Competition, AIA Seattle, Spring 2009, **Notable Entry**
Sustainable, culturally responsive, pediatric clinic for East Africa.
Lead Designer, collaborated with Satoshi Kiyono, Eric Tan, Amy Latten, Josh Everard and Matt Gineo

The Porous City, Spring 2009, **Finalist**
Mobile cultural space in Bangalore, India. One of the fifteen finalists.

Iraqi Memorial, Spring 2009, **Top Juror's Selection**
"Metaphorical references to inflection, wind, and erosion are important to this artist's interventionist mark making. Inflexion would be an elegant scar on the surface of the earth that recalls the land-based practices of Dennis Oppenheim, Robert Morris, and Robert Smithson. Inflexion refers to the power of man to effect change, while suggesting that such alteration is also subject to natural forces beyond human control."
-Ann Wolfe (Curator of Exhibitions and Collections, Nevada Museum of Art)

eVolo 07 Housing Competition, Summer 2007, **Special Mention**
Considered one of the most prestigious digital architecture ideas competitions in the world.
184 projects from 36 different countries entered.

OTHER DESIGN COMPETITIONS

Polling Booth Competition, Harvard GSD, Fall 2008, **Selected Project**
"Conceptually it acknowledges that the act of voting is a fiercely individual act, and the defensive structure serves to define a personal space/zone around the voter. I find the structure interesting from a formal and tectonic point view. Its center of gravity is high, and it necessarily 'stands' off the ground, on the thin support of tapered quills. I like the 'bed of nails' structural principle- whereby it stands because of the multiple improbable supports rather than a few obvious structural ones."
-Eric Howeler (Associate Professor, Harvard University)

Collab Design Competition, Philadelphia Museum of Art, Fall 2008, **Third Place**

Designed and prototyped a bench for the museum. Awards presented by Frank Gehry.

Rensselaer Final Project Competition, Fall 2008, **Second Prize**

Annual internal competition for fifth year architecture students at RPI.

Bedford Traveling Fellowship, Summer 2008, Traveled to Tokyo, Kiyoto, Osaka

Selected to study the contemporary presence of the master builder - collaborations between engineers and architects in Japan. Visited the offices of SANAA, Toyo Ito, Arata Isozaki, Mutsuro Sasaki, Takenaka Corporation, and Arup | Tokyo.

EOY Design Competition, Spring 2008, **Overall Winner**

Designed and fabricated a chair out of 1,000 ft of ethernet cable for CXtec.

Change the World Challenge Ideas Competition, Fall 2005, **Best Idea**

Collapsible disaster relief shelter. One of five students awarded within the entire university (RPI).

Haiti 8 x 8 x 40 Design Competition, Fall 2004, **Best Overall Design**

A school in Haiti constructed out of shipping containers. Winning design was built in Haiti. Equal collaboration with Jason Beam, Elise DeChard and Elyse Spink.

PROFESSIONAL SERVICE

ACADIA 2018, Architecture Department, Universidad Iberoamericana, Mexico City

Member of the Scientific Committee, June 2018

Reviewed four paper submissions

3rd Annual Composites in Architecture Design Challenge, ACMA

Competition Juror, May 2018

Author of Competition Brief, January 2018

Wrote competition brief for the 3rd Annual Composites in Architecture Design Challenge, a national competition presented by the American Composites Manufacturers Association (ACMA). Additionally, was a juror for the competition. Participating schools included: Cornell University, Carnegie Mellon University, Penn State University, Ohio State University, Pratt Institute and Syracuse University.

SimAUD2018, Faculty of Architecture and the Built Environment, Delft University of Technology, Delft

Member of the Scientific Committee, January 2018

Reviewed five paper submissions

ACADIA 2017, School of Architecture + Planning, Massachusetts Institute of Technology, Cambridge

Member of the Scientific Committee, June 2017

Reviewed seven paper submissions

2nd Annual Composites in Architecture Design Challenge, ACMA

Organizer of Workshop and Kick-off Event, January 2017

Clemson University hosted the workshop for other participating schools at CU-ICAR.

ACADIA 2016, Taubman College of Architecture, University of Michigan, Ann Arbor

Member of the Scientific Committee, May 2016

Reviewed five paper and project submissions

WORKSHOP

Computational Design: Practices, Histories, Infrastructures, Carnegie Mellon University, Pittsburgh

Introduction to Mathematical Form-Making, October 8, 2017

Three hour workshop taught to graduate students, PhD students and several faculty.

INFORMAL WORKSHOPS AND DEMONSTRATIONS (OUTREACH)

2015 Artisphere, Greenville

Design with Mathematics, May 8–10, 2015

Interacted with between 200-300 middle/elementary school students.

2015 Cambridge Science Festival, MIT Museum, Cambridge

Architecture + Mathematics, April 24, 2015

GUEST CRITIC

The Bartlett, University College of London (UCL), M.Arch. Research Clusters, Final Review, Spring 2018

University of North Carolina at Charlotte, Jefferson Ellinger's M.Arch. Studio, Final Review, Fall 2017

Kennesaw State University, Saleh Uddin's B.Arch. Studio, Final Review, Spring 2017

University of North Carolina at Charlotte, Jefferson Ellinger's M.Arch. Thesis, Final Review, Spring 2017

University of North Carolina at Charlotte, Peter Wong's M.Arch. Thesis, Final Review, Spring 2017

University of North Carolina at Charlotte, Rachel Dickey's B.Arch. Studio, Final Review, Spring 2017

Savannah College of Art and Design, Scott Singeisen's B.Arch. Studio, Final Review, Winter 2017

Kennesaw State University, Michael Carroll's B.Arch. Studio, Final Review, Fall 2016

University of North Carolina at Charlotte, All 5th Year B.Arch. Studios, Final Review, Fall 2016

Kennesaw State University, Saleh Uddin's B.Arch. Studio, Final Review, Spring 2016

University of North Carolina at Charlotte, Jefferson Ellinger's B.Arch. Studio, Final Review, Fall 2015

Kennesaw State University, Edwin Akins' B.Arch. Studio, Final Review, Fall 2015

University of North Carolina at Charlotte, Jefferson Ellinger's B.Arch. Studio, Midterm Review, Fall 2015

University of North Carolina at Charlotte, CriticalMASS Graduate Research Symposium, Spring 2015

University of North Carolina at Charlotte, Kelly Carlson-Reddig's B.Arch. Studio, Final Review, Fall 2014

University of North Carolina at Charlotte, Jefferson Ellinger's B.Arch. Studio, Midterm Review, Fall 2014

Clemson University, Armando Montilla's M.Arch. Studio, Midterm Review, Spring 2014

Rensselaer Polytechnic Institute, All 2nd Year B.Arch. Studios, Final Review, Spring 2013

Georgia Institute of Technology, Volkan Alkanoglu's M.Arch. Studio, Midterm Review, Spring 2013

Rensselaer Polytechnic Institute, Francis Bitonti's B.Arch. Studio, Final Review, Fall 2012

Clemson University, Armando Montilla's M.Arch. Studio, Penultimate Review, Fall 2012