

[Updated February 2021]

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## EDUCATION

Harvard University, Graduate School of Design, Cambridge, Massachusetts, USA	2007
Doctor of Design	
Dissertation: <i>Parametric Practices: Models for Design Exploration in Architecture</i>	
Harvard University, Graduate School of Design, Cambridge, Massachusetts, USA	2003
Master of Design Studies	
Architectural Association, London, United Kingdom	2000
Master of Architecture	
University of California at Berkeley, College of Environmental Design, Berkeley, California, USA	1996
Bachelor of Arts in Architecture	

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## ACADEMIC APPOINTMENTS

University of Southern California, Los Angeles, California, USA	2018-
<i>Associate Professor of Civil and Environmental Engineering Practice and of Architecture Viterbi School of Engineering &amp; School of Architecture (Joint Appointment) Director of BSCE Building Science Program (CEE) Director of the MSCE Masters of Advanced Design and Construction Technology Program (CEE)</i>	
University of Southern California, School of Architecture, Los Angeles, California, USA	2009-2016
<i>Assistant Professor</i>	
University of Southern California, Sonny Astani Department of Civil and Environmental Engineering	2010-2016
<i>Assistant Professor (Courtesy Joint Appointment)</i>	
University of California, Los Angeles, School of Architecture and Urban Design, California, USA	2008-2009
<i>Lecturer (Part Time)</i>	
Southern California Institute of Architecture, Los Angeles, California, USA	2006-2009
<i>Design and Applied Studies Faculty</i>	
Stanford University, Civil and Environmental Engineering Department, Palo Alto, California, USA	2008
<i>Lecturer (Part Time)</i>	
Architectural Association, Design Research Laboratory, London, United Kingdom	2006-2007
<i>Technical Tutor (Part Time)</i>	

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## PROFESSIONAL EXPERIENCE

- Trax.GD**, Los Angeles and Toronto, USA and Canada 2020-  
**Advisor, Consultant**  
Responsible for research and product market development
- Arup**, London, United Kingdom and Los Angeles, California, USA 2017-2021  
**Global Research Manager, Associate Director**  
Responsible for managing global research programs and the global research team
- Gehry Technologies Inc.**, Los Angeles, California, USA 2008-2010  
**Vice President of Marketing/ Knowledge Services**  
Responsible for industry strategy, marketing and for developing global knowledge services team, training, curricula, and seminars.
- CADforce, Inc.**, Marina Del Rey, California, USA 2007-2008  
**Vice President of Innovation**  
Responsible for research, product development of building information modeling systems, and service standards for consulting teams in Asia, India, Europe and US.
- Zaha Hadid Architects**, London, United Kingdom 2000-2002  
**Project Manager and Designer, one-north, Science Hub Master plan**, Singapore  
Co-designed the competition scheme for the urban design project and master plan. Responsibilities included design and coordination of 5 million m<sup>2</sup> of gross floor area over 200 hectares of green and brown-field sites; project management; client liaison; contracts; multi-disciplinary consultant team; and management of an 8-person architectural team.  
  
*Project Designer:* Worked on competitions, exhibition designs, RFQ/RFP packages, and built projects.
- Steinberg Group Architects**, San Jose, California, USA 1996-1998  
**Junior Designer:** Worked on residential, public school and state university projects in all phases, from schematic design to construction administration.

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## FELLOWSHIPS AND HONORS

- Albert and Elaine Borchard Foundation, Scholar in Residence Fellowship** 2016-2017  
The fellowship provides a unique bridge between France and America – created through the scholarship and creativity of distinguished individuals involved in cultural, academic, and public affairs; includes residency in France and research funding.
- Safdie Architects Research Fellowship** 2004-2005  
Research fellows work with Moshe Safdie and his practice to formulate specific proposals and research plans that fit the umbrella themes. Fellows are invited through a competition to spend one year in residence at the Boston office.
- Frederick Sheldon Traveling Fellowship** 2004-2005  
Fellowships are competitively awarded by the President and Fellows of Harvard College to graduate students (university wide) for one academic year of travel, study, and/or research outside the United States.
- Research Fellowship**, Massachusetts Institute of Technology, Media Lab, Smart Cities Group 2004-2006  
Fellowship was granted to research with Professor William J. Mitchell (Lab Director).
- Research & Teaching Fellowships**, Harvard University, Graduate School of Design 2003-2007

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## PUBLICATIONS

If a co-author is an advisee, the name is indicated with an asterisk.

Thomson Reuters Researcher ID: <http://www.researcherid.com/rid/O-9759-2016> (O-9759-2016)

### JOURNAL PUBLICATIONS

Works in this category are refereed journal articles. Journals' h5-index and h5-median scores are noted where published by Google Scholar metrics as of October 15, 2016.

- (1) Pantazis, E\*, Gerber, D. "Beyond Geometric Complexity: A Critical Review of Complexity Theory in Architecture", *Architecture Science Review Journal*, Vol 60, April 2019. [h5-index: 69; h5-median: 35]
- (2) Pantazis, E\*, Gerber D. "A framework for generating and evaluating façade designs using a multi-agent systems approach", *International Journal of Architectural Computing*. Vol16, November 2018, p. 248-270, <https://doi.org/10.1177/1478077118805874> [h5-index: 21; h5-median: 85]
- (3) Gerber D, Pantazis E\*, Wang A\*. "A Multi-Agent Approach for Performance Based Architecture: Design Exploring Geometry, User, and Environmental Agencies in Façades," *Journal of Automation in Construction*, Vol. 76, April 2017, pp. 45–58, <http://dx.doi.org/10.1016/j.autcon.2017.01.001> [h5-index: 53; h5-median: 72]
- (4) Heydarian A\*, Pantazis E\*, Wang A\*, Carneiro J P\*, Gerber D, Becerik-Gerber B. "Towards User Centered Building Design: Identifying End-User Lighting Preferences via Immersive Virtual Environments," *Journal of Automation in Construction*, Vol. 81, Sept. 2017, pp. 56-66 [h5-index: 53; h5-median: 72]
- (5) Heydarian A\*, Pantazis E\*, Carneiro J P\*, Gerber D, Becerik-Gerber B. "Lights, building, action: Impact of default lighting settings on occupant behavior," *Journal of Environmental Psychology*, Vol 48, pp. 212-223, <http://dx.doi.org/10.1016/j.jenvp.2016.11.001> [h5-index: 39; h5-median: 54]
- (6) Khashe S\*, Gerber D, Smith I. (2016) "Surveying the Evolution of Computing in Architecture, Engineering, and Construction Education Since 2012," *Journal of Computing in Civil Engineering*, [http://dx.doi.org/10.1061/\(ASCE\)CP.1943-5487.0000580](http://dx.doi.org/10.1061/(ASCE)CP.1943-5487.0000580) [h5-index: 27; h5-median: 38]
- (7) Khashe S\*, Heydarian A\*, Gerber D, Becerik-Gerber B, Wood W. (2015) "Influence of LEED Branding on Building Occupants' Pro-Environmental Behavior," *Journal of Building and Environment*, Vol. 94, pp. 477-488, <http://dx.doi.org/10.1016/j.buildenv.2015.10.005> [h5-index: 60; h5-median: 83]
- (8) Heydarian A\*, Carneiro J P\*, Gerber D, Becerik-Gerber B. (2015) "Immersive Virtual Environments, Understanding the Impact of Design Features and Occupant Choice upon Lighting for Building Performance," *Journal of Building and Environment*, Vol.89, pp: 217-228, <http://dx.doi.org/10.1016/j.buildenv.2015.02.038> [h5-index: 60; h5-median: 83]
- (9) Heydarian A\*, Carneiro J P\*, Gerber D, Becerik-Gerber B, Hayes T, Wood W. (2015) "Immersive Virtual Environments versus Physical Built Environments: A Benchmarking Study for Building Design and User-Built Environment Explorations," *Journal of Automation in Construction*, Vol.54, pp: 116-126, <http://dx.doi.org/10.1016/j.autcon.2015.03.020> [h5-index: 53; h5-median: 72]
- (10) Flager F, Gerber D, Kallman B. (2014) "Measuring The Effect of Scale and Coupling On Solution Quality For Building Design Problems," *Journal of Design Studies*, Vol. 35, Issue 2, March 2014. pp: 180-199, <http://dx.doi.org/10.1016/j.destud.2013.11.001> [h5-index: 29; h5-median: 45]
- (11) Gerber D, Khashe S\*, Smith I. (2014) "Surveying the Evolution of Computing in Architecture, Engineering, and Construction Education," *Journal of Computing in Civil Engineering*, Vol: 29, No: 5, [http://dx.doi.org/10.1061/\(ASCE\)CP.1943-5487.0000361](http://dx.doi.org/10.1061/(ASCE)CP.1943-5487.0000361) [h5-index: 27; h5-median: 38]
- (12) Lin S\*, Gerber D. (2014) "Designing-In Performance: A Framework for Evolutionary Energy Performance Feedback in Early Stage Design," *Journal of Automation in Construction*, Vol: 38, pp: 59-73, <http://dx.doi.org/10.1016/j.autcon.2013.10.007> [h5-index: 53; h5-median: 72]

- (13) Lin S\*, Gerber D. (2014) "Evolutionary Energy Feedback for Design: Multidisciplinary Design Optimization and Performance Boundaries for Design Decision Support," *Journal of Energy and Buildings*, Vol: 84, pp: 426-441, <http://dx.doi.org/10.1016/j.enbuild.2014.08.034> [h5-index: 70; h5-median: 92]
- (14) Gerber D, Lin S\*. (2013) "Designing in Complexity: Simulation, Integration, and Multidisciplinary Design Optimization for Architecture," *Simulation: Transactions of the Society for Modeling and Simulation International, Special Issue: Simulation for Architecture and Urban Design*, Vol. 90(8), pp: 936-959, <http://dx.doi.org/10.1177/0037549713482027> [h5-index: 20; h5-median: 28]
- (15) Gerber D. (2012) "PARA-Typing Informing Form and the Making of Difference," *International Journal of Architectural Computing*, Vol. 10, No. 4, pp: 501-520, <http://dx.doi.org/10.1260/1478-0771.10.4.501> [h5-index: 10; h5-median: 14]
- (16) Becerik-Gerber B, Gerber D, Ku K. (2011) "The Pace of Technological Innovation in Architecture, Engineering and Construction Education: Integrating Recent Trends into The Curricula," *Journal of Information Technology in Construction*, Vol. 16, pp: 411-432, <http://www.itcon.org/2011/24>

## RIGOROUSLY REFEREED CONFERENCE PUBLICATIONS

Note that in design computing, similar to computer science, the top conferences are considered as important as the journals. These conferences use a rigorous review process, in which multiple (3-5) program committee members review each submitted paper. Top conferences in design computing typically accept <30% of submitted papers. Publications listed in this category are [full papers](#) that are double blind reviewed. Acceptance rates noted where known.

- (17) Khean N, Fabbri A, Gerber D, Haeusler H. "An Examination of the Potential Social, Political, Economic and Cultural (SPEC) Factors that Affect Machine Learning Research and Development in the Architecture, Engineering and Construction (AEC) Industry" CAAD futures 2019: Computer-Aided Architectural Design Futures 2019, KAIST, 291 Daehak-ro, Yuseong-gu, Daejeon, South Korea, June 26-29, 2019.
- (18) Sustarevas J\*, Tan B, Gerber D, Stuart-smith R, Pawar V. (2019) "YouWasps : Multi-Robot Construction using Mobile and Autonomous Additive Manufacturing Systems for Large-scale 3D Printing," In *Proceedings IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* pp. 2320-2327.
- (19) Pantazis E\*. and Gerber D, (2019) "Behavioral Form Finding: A Multi Agent Systems framework for Environmental Aware form finding of shell structures," In *Design With All Senses, Proceedings of the Design Modelling Symposium (DMS) 2019*, C. Gengnagel, et al., Editors, Berlin, Germany.
- (20) Gerber D, Pantazis E\*. (2016) "A Multi Agent System for Façade Design: A Design Methodology for Design Exploration, Analysis and Simulated Robotic Fabrication," In *Proceedings of the Thirty-sixth Annual Conference of the Association of Computer Aided Design of Architecture (ACADIA)*, October 2016, Ann Arbor, Michigan. **[Acceptance rate: 28%]**
- (21) Gerber D, Pantazis E\*, Alan Wang A\*, Herrera B\*, Daley K\*. (2016) "A Multi-Agent System for Design: Geometric Complexity in Support of Building Performance," In *Proceedings of the Seventh ACM Symposium on Simulation for Architecture and Urban Design (SimAUD)*, May 2016, London UK
- (22) Gerber D, Pantazis E\*, Marcolino L S. (2015) "Design Agency: Prototyping Multi-Agent Systems in Architecture," In *Communications in Computer and Information Science Vol. 527, Computer-Aided Architectural Design Futures, The Next City - New Technologies and the Future of the Built Environment, Sixteenth International Conference, CAAD Futures 2015*, São Paulo, Brazil, July 2015. G. Celani et al. (Eds.), pp. 213-235, © Springer-Verlag Berlin Heidelberg. *Selected Papers*: ISBN: 978-3-662-47385-6  
DOI: [Chapter/10.1007/978-3-662-47386-3\\_12](http://dx.doi.org/10.1007/978-3-662-47386-3_12) **[Acceptance rate: 16%]**
- (23) Gerber D, Pantazis E\*, Marcolino L, Heydarian A\*. (2015) "Multi Agent Systems for Design Simulation Framework: Experiments with Virtual Physical Social Feedback for Architecture," In *Proceedings of the Sixth ACM Symposium on Simulation for Architecture and Urban Design (SimAUD)*, Washington DC, April 2015. pp: 67-74, ISBN: 9781329049383, <http://dl.acm.org/citation.cfm?id=2873049> **[Acceptance rate: 29%]**

- (24) Shiordia-Lopez R\*, Gerber D. (2014) "Context-Aware Multi-Agent Systems: Negotiating Intensive Fields," In *Proceedings of the Thirty-fourth Annual Conference of the Association of Computer Aided Design of Architecture (ACADIA)*, Los Angeles, California, October 2014, pp: 153-162, ISBN: 978-1926724478, [http://cumincad.scix.net/acadia14\\_153](http://cumincad.scix.net/acadia14_153) [Acceptance rate: 36%]
- (25) Gerber D, Shiordia-Lopez R\*, Veetil S\*, Mahesh A\*. (2014) "Design Agency: Prototyping Multi-Agent System Simulation for Design Search and Exploration," In *Proceedings of the Fifth ACM Symposium on Simulation for Architecture and Urban Design (SimAUD)*, Tampa, Florida, April 2014, pp: 91-98, ISBN: 978-1-312-08357-8, <http://dl.acm.org/citation.29644963> [Acceptance rate: 43%]
- (26) Gerber D, Lin S\*, Ma X, (2013) "Designing-In Performance: A Case Study of Applying Evolutionary Energy-Performance Feedback for Design (EPPFD)," In *Proceedings of the Thirty-third Annual Conference of the Association of Computer Aided Design of Architecture (ACADIA)*, Cambridge, Ontario, Canada, October 2013, pp: 79-86, ISBN: 978-1-926724-22-5, [http://cumincad.architexturez.net/doc/oai-cumincadworks.id-acadia13\\_079](http://cumincad.architexturez.net/doc/oai-cumincadworks.id-acadia13_079) [Acceptance rate: 29%]
- (27) Lin S\*, Gerber D. (2013) "Designing-In Performance: Cloud Based Simulation and Multidisciplinary Design Solution Space Search," In *Proceedings of the Fourth ACM Symposium on Simulation for Architecture and Urban Design (SimAUD)*, San Diego, California, April 2013, pp: 139-146, <http://dl.acm.org/citation.29644963>
- (28) Gerber D, Lin S\*. (2012) "Synthesizing Design Performance: An Evolutionary Approach to Multidisciplinary Design Optimization Designing-In Performance through Solution Space Thinking," In *Proceedings of the Thirty-second Annual Conference of the Association of Computer Aided Design of Architecture (ACADIA)*, San Francisco, California, October 2012, pp, 67-75, ISBN: 978-1-62407-267-3, [http://cumincad.architexturez.net/acadia12\\_67](http://cumincad.architexturez.net/acadia12_67) [Acceptance rate: 26%]
- (29) Gerber D, Lin S\*, Pan B, Senel Solmaz A\*. (2012) "Design Optioneering: Multi-Disciplinary Design Optimization through Parameterization, Domain Integration and Automation of a Genetic Algorithm," In *Proceedings of the Third ACM Symposium on Simulation for Architecture and Urban Design (SimAUD)*, Orlando, Florida, March 2012, pp: 23-30, ISBN: 978-1-61839-790-4, <http://dl.acm.org/citation.cfm?id=2339453.2339464> [Acceptance rate: 30%]
- (30) El Sheik M\*, Gerber D. (2011) "Building Skin Intelligence: A Parametric and Algorithmic Tool for Daylighting Performance Design Integration," In *Proceedings of the Thirty-first Annual Conference of the Association of Computer Aided Design of Architecture (ACADIA)*, Calgary, Canada, November 2011, pp: 170-177, ISBN: 978-1-61364-595-6, [http://cumincad.scix.net/acadia11\\_170](http://cumincad.scix.net/acadia11_170) [Acceptance rate: 26%]
- (31) Meagher M, Huang J, Gerber D. (2007) "Revisiting the Open Plan: Ceilings and Furniture as Display Surfaces for Building Information," In *Proceedings of the Eleventh International Conference on Information Visualization*, July, 2007, IEEE Computer Society, Washington, DC, 601-606, <http://dx.doi.org/10.1109/IV.2007.98> [Acceptance rate: 23%]

## EDITED BOOKS

- (32) Gerber D, Ibanez M. (co-Editors) (2014) "Paradigms in Computing: Making, Machines, and Models for Design Agency in Architecture," eVolo (408 pages). ISBN: 978-1938740091  
Review of the book: published in the *International Journal of Architectural Computing* Vol. 13(3-4), pp. 353–358, <http://multi-science.atypon.com/doi/pdf/10.1260/1478-0771.13.3-4.353>
- (33) Morel P, Bier H, and Gerber D, "Disruption in Architecture, The Convergence of New Paradigms in Architecture, Springer Series in Adaptive Environments, (edited volume in preparation).

## BOOK CHAPTERS

Works in this category are invited and/ or refereed book contributions.

- (34) Koc E, Pantazis E\*, Soibelman L. and **Gerber D.** (2019): "*Industry 4.0: Emerging Trends and Research Direction*," in Construction 4.0- Innovation Platform for the Built Environment, Sawhney A., et. Al, Ed., Taylor&Francis, Oxford,UK.
- (35) Marcolino L S, Xu H, **Gerber D**, Kolev B\*, Price S\*, Pantazis E\*, Tambe M. (2016) "Multi-agent Team Formation for Design Problems," In Coordination, Organizations, Institutions and Norms in Agent Systems XI, Volume 9628 of the series of Lecture Notes in Computer Science, pp: 354-375 **[23 out of 46 invited papers selected]**
- (36) **Gerber D.** (2014) "Parametric Tendencies and Design Agencies," In Paradigms in Computing: Making, Machines, and Models for Design Agency in Architecture, David Gerber and Mariana Ibanez (co-Editors) eVolo. pp: 387-400, ISBN: 978-1938740091
- (37) **Gerber D.** (2013) "Parametric Urbanism Redux: Urban Design and Complexity in an Age of Infinite Computing," In Master Planning the Adaptive City: Computational Approaches to Urbanism in the Twenty-first Century. Tom Verebes (Editor) Routledge, Taylor and Francis. pp: 186-192, ISBN 978-0-415-53479-6
- (38) **Gerber D.** (2012) "Future Present: Design with Infinite Computing in Mind," In Scripting the Future. Neil Leach, Philip Yuan (co-Editors), Tongji University Press, Shanghai. pp: 95-99, ISBN 978-7-5608-4835-8
- (39) **Gerber D.** (2011) "Notes on the Parametric Prototype and the New Paradigm of Optioneering," In New Computational Paradigms in Architecture, Tom Verebes, Liu Yanchuan, Xu Feng (co-Editors), Tsinghua University Press, Beijing. In English and Mandarin Chinese. pp: 130-141, ISBN: 978-7-3022-9549-5
- (40) **Gerber D.** (2007) "Towards a Parametric Urbanism," In Interactive Cities. Valerie Chatelet (Editor) Anomalie digital art n°6, Anomos & Hyx Editions, Paris. In English and French. pp: 146-171, ISBN: 978-2-9103-8542-2

## EDITED JOURNAL ISSUES

Issues of peer-reviewed journals for which I served as an editor or co-editor.

- (41) **Gerber D**, Pantazis, E., Bogosian, B., Militiades, C., Nahmad Vazquez, A., (Issue co-Editors) (2021) Select papers from the "*CAAD futures 2021: Computer-Aided Architectural Design Futures 2021, "Design Imperatives... The Future is Now."* Communications in Computer and Information Science Springer Series (in progress)
- (42) Christenson M, **Gerber D**, Jabi W, Marcu M, and Wit A, (Issue co-Editors) (2019) Special Issue: "*Means, Methods, Machines and Making in Architecture*," *Architecture Science Review Journal*, Taylor and Francis, Vol 62, No.5.
- (43) Wit A, Vasey L, Parlac V, Marcu M, Jabi W, **Gerber D**, Daas M, Clayton M, (Issue co-Editors) (2019) Special issue: "Artificial intelligence and robotics in architecture: Autonomy, agency, and indeterminacy," *International Journal of Architecture and Computing*, Volume 16, Issue 4, December 2018, Sage Publishing, UK.
- (44) **Gerber D**, Goldstein R. (Issue co-Editors) (2015) *Simulation: Transactions of the Society for Modeling and Simulation International, Special Issue: Simulation for Architecture and Urban Design*, Vol.91 (9) <http://sim.sagepub.com/content/91/9.toc>, <http://sim.sagepub.com/content/91/9/771> <http://dx.doi.org/10.1177/0037549715608373>
- (45) **Gerber D.** (2015) (Issue Editor) ACADIA 2014 Issue, *International Journal of Architecture and Computing*, Volume 13, Issue 2, June 2015, Multi Science Publishing, UK. <http://multi-science.atypon.com/toc/ijac/13/2> <http://dx.doi.org/10.1260/1478-0771.13.2.iii>
- (46) **Gerber D**, Gutierrez M. (Issue co-Editors) (2014) Design Agency Issue, *International Journal of Architecture and Computing*, Volume 12, Issue 3, June 2014, Multi Science Publishing, UK. <http://multi-science.atypon.com/toc/ijac/12/3> <http://dx.doi.org/10.1260/1478-0771.12.3.iii>

## EDITED CONFERENCE PROCEEDINGS

Proceedings of peer-reviewed conferences for which I served as a co-editor.

- (47) **Gerber D**, Pantazis, E., Bogosian, B., Militiades, C., Nahmad Vazquez, A., (co-Editors) (2021) Proceedings of the "CAAD futures 2021: Computer-Aided Architectural Design Futures 2021, "Design Imperatives... The Future is Now." Bi-Annual Conference, University of Southern California, July 2021 (in progress)
- (48) **Gerber D**, Bartosh, A., Omidfar Sawyer A., Schwartz, M.,(co-Editors) (2021) "Proceedings of the ACM 11th Symposium on Simulation for Architecture and Urban Design," Human+, University of Southern California, April 15-17, 2021. (XXX pages). ISBN: XXX (in progress)
- (49) **Gerber D**, Huang A, Sanchez J. (co-Editors) (2014) "ACADIA 2014 Design Agency: Proceedings of the Thirty-fourth Annual Conference of the Association for Computer Aided Design in Architecture," Riverside Architectural Press (752 pages). ISBN: 978-1926724478
- (50) **Gerber D**, Huang A, Sanchez J. (co-Editors) (2014) "ACADIA 2014 Design Agency: Projects of the Thirty-fourth Annual Conference of the Association for Computer Aided Design in Architecture," Riverside Architectural Press (290 pages). ISBN: 978-1926724485
- (51) **Gerber D**, Goldstein R. (co-Editors) (2014) "Proceedings of the ACM Fifth Symposium on Simulation for Architecture and Urban Design," The Society for Modeling and Simulation International, (227 pages). ISBN: 978-1312083578

## REFEREED CONFERENCE PUBLICATIONS

Works in this category are refereed full papers that are single or double blind reviewed by 2-3 program committee members.

- (52) Sham N, Chow E, Ghaznavi F, Man J, **Gerber D**, "Aplysia: A Neuroevolutionary Generative Design Tool." In *Proceedings of the 11th ACM Symposium on Simulation for Architecture and Urban Design (SimAUD)*, Los Angeles California USA, April 2021. (under review)
- (53) Nauman, K\*, Benitez, M\*, **Gerber D**, "Sustainable Retrofit Design Framework Case Study for Multifamily Housing Structure." In *Proceedings of the 11th ACM Symposium on Simulation for Architecture and Urban Design (SimAUD)*, Los Angeles California USA, April 2021. (under review)
- (54) Benitez, M\*, **Gerber D**, "Designing a Passively Actuated Shading System for Building Retrofits." In *Proceedings of the 11th ACM Symposium on Simulation for Architecture and Urban Design (SimAUD)*, Los Angeles California USA, April 2021. (under review)
- (55) McGlashan N, Curtis Ho, C, **Gerber D**, Breslav, S, Khan A, "Sustainability Certification Systems as Goals in a Generative Design System." In *Proceedings of the 11th ACM Symposium on Simulation for Architecture and Urban Design (SimAUD)*, Los Angeles California USA, April 2021. (under review)
- (56) Marchesi M, Tweed M, **Gerber D**, "Applying Circular Economy to Urban Housing" In *Proceedings of the 35<sup>th</sup> Passive and Low Energy Architecture (PLEA) Conference on Sustainable Architecture and Urban Planning Planning Post Carbon Cities, A Coruña*, Portugal 1st-3rd September 2020 (accepted)
- (57) Pantazis E\*, **Gerber D**, (2019) "A Multi Agent Systems framework for integrating environmental parameters in the design of shell structures," In *26th International Workshop on intelligent Computing in Engineering (EG-ICE)*, P. Geyer, et al., Editors, Leuven, Belgium.
- (58) Pantazis, E\*, **Gerber, D**. (2019) "Behavioral Form Finding: An interactive Multi Agent Framework for Environmental Aware form finding"- *Design Modeling Symposium 2019*, September 2019, Technical University of Berlin, Germany.

- (59) **Becerik-Gerber B**, Druhora D, Gerber D, Cracchiola B. (2018) "Engineering Innovation for Global Challenges: Peacebuilding in Refugee Camps: Creating Innovators and Witnesses, WEEF-GEDC 2018 Peace Engineering, November 12-16, 2018, Albuquerque, NM.
- (60) Pantazis E\*, **Gerber D**. (2017) "Emergent Order through Fluctuations: A framework for exploring self-organizing structures through using Swarm Robotics" In *Proceedings of the Thirty-fifth eCAADe Conference – Volume 1*, September 2017, Rome, Italy, [http://papers.cumincad.org/ecaade2017\\_124](http://papers.cumincad.org/ecaade2017_124)
- (61) **Gerber D**, Pantazis E\*. (2016) "Design Exploring Complexity in Architectural Shells – Interactive Form Finding of Reciprocal Frames through a Multi-Agent System," In *Proceedings of the Thirty-fourth eCAADe Conference – Volume 1*, August 2016, Oulu, Finland, [http://papers.cumincad.org/ecaade2016\\_224](http://papers.cumincad.org/ecaade2016_224)
- (62) Yazici S, **Gerber D**. (2016) "A Generative Analytical Prototyping Approach for Architectural Design," Parametric Materialism: Evolution of Digital Technologies for Development" In *Proceedings of the 2016 Arab Society for Computer Aided Architectural Design (ASCAAD)*, November 2016, London, UK
- (63) Heydarian A\*, Pantazis E\*, **Gerber D**, Becerik-Gerber B. (2016) "Defining Lighting Settings to Accommodate End-User Preferences While Reducing Energy Consumption in Buildings," In *Proceedings of the CRC 2016 Construction Research Congress (CRC2016)*, May - June 2016, Puerto Rico
- (64) Heydarian A\*, Carneiro J P\*, Pantazis E\*, **Gerber D**, Becerik-Gerber B. (2015) "Default Conditions: A Reason for Design to Integrate Human Factors," In *Proceedings of the First International Symposium on Sustainable Human-Building Ecosystems (ISSHBE)*, October 2015, Pittsburgh, PA
- (65) Heydarian A\*, Pantazis E\*, Carneiro J P\*, **Gerber D**, Becerik-Gerber B (2015) "Towards Understanding End-user Lighting Preferences in Office Spaces by Using Immersive Virtual Environments," In *Proceedings of the ASCE International Workshop of Computing in Civil Engineering*, June 2015, Austin, TX, ISBN (PDF): 978-0-7844-7924-7, <http://ascelibrary.org/doi/abs/10.1061/9780784479247.059>
- (66) Heydarian A\*, **Gerber D**, Carneiro J P\*, Becerik-Gerber B, Hayes T, Wood W. (2014) "Immersive Virtual Environments: Experiments on Impacting Design and Human Building Interaction," In *Proceedings of the Nineteenth International Conference on the Association of Computer-Aided Architectural Design Research in Asia (CAADRIA)*, Kyoto, Japan, May 2014, pp: 729-738, ISBN: 978-988-19026-5-8, [http://cumincad.scix.net/caadria2014\\_161](http://cumincad.scix.net/caadria2014_161)
- (67) Pantazis E\*, **Gerber D**. (2014) "Material Swarm Articulations – New View Reciprocal Frame Canopy," In *Proceedings of the Thirty-second eCAADe*, New Castle, England, UK, September 2014, pp: 463-473, Vol. 1., ISBN: 9789491207068, [http://cumincad.scix.net/cgi-bin/works/Show?ecaade2014\\_233](http://cumincad.scix.net/cgi-bin/works/Show?ecaade2014_233)
- (68) Abraham K, Flager F, Macedo J, **Gerber D**, Lepech M. (2014) "Multi-Attribute Decision-Making and Data Visualization for Multi-Disciplinary Group Building Project Decisions", Working Paper Series, In *Proceedings of the Engineering Project Organization Conference*, Winter Park, CO, July 2014. [http://www.epossociety.org/EPOC2014/Papers/Abraham\\_Flager\\_Macedo\\_Gerber\\_Lepech.pdf](http://www.epossociety.org/EPOC2014/Papers/Abraham_Flager_Macedo_Gerber_Lepech.pdf)
- (69) Shiordia-Lopez R\*, **Gerber D**. (2014). "Context-Aware Multi-Agent Systems: Negotiating Intensive Fields," 'Design in Freedom' In *Proceedings of the Eighteenth Conference of the Iberoamerican Society of Digital Graphics (SIGRAFI)* [Blucher Design Proceedings, v.1, n.8, p. 138-143] São Paulo, Brazil 2014, ISSN 2318-6968, DOI 10.5151/despro-sigradi2014-0024 <http://www.proceedings.blucher.com.br/intensive-fields-14241>
- (70) Batungbakal A\*, Konis K, **Gerber D**, Valmont E. (2014) "The Acoustic Performance of Double-Skin Facades: A Design Support Tool for Architects" Featured as one of the Best 10 Papers presented at SB13 California, In *Proceedings of the 2014 World Sustainable Building Conference*, Barcelona, Spain. October 2014.
- (71) **Gerber D**, Lin S\*. (2013) "Geometric Complexity and Energy Simulation: Evolving Performance Driven Architectural Form," In *Proceedings of the Eighteenth International Conference on Computer Aided Architectural Design Research in Asia (CAADRIA)*, pp: 87-96, Singapore, May 2013 [http://cumincad.scix.net/caadria2013\\_006](http://cumincad.scix.net/caadria2013_006)
- (72) Lin S\*, **Gerber D**. (2013) "Evolutionary Energy Performance Feedback for Design (EPPFD)," In *Proceedings of the Thirty-first eCAADe*, Delft, The Netherlands, September 2013, pp: 69-77, Vol. 1., [http://cumincad.architexturez.net/caade2013\\_114](http://cumincad.architexturez.net/caade2013_114)



- (73) Makris M\*, Gerber D, Carlson A, Noble D. (2013) "Informing Design Through Parametric Integrated Structural Simulation," In *Proceedings of the Thirty-first eCAADe*, Delft, The Netherlands, September 2013, pp: 175-184, Vol. 2., [http://cumincad.architecture.net/doc/oai-cumincadworks.id-ecaade2013\\_258](http://cumincad.architecture.net/doc/oai-cumincadworks.id-ecaade2013_258)
- (74) Gerber D, Lin S\*, Ma X, (2013) "Designing-In Performance: A Case Study of Applying Evolutionary Energy-Heydarian A\*, Carneiro J P\*, Gerber D, Becerik-Gerber B. (2014) "Towards Measuring the Impact of Personal Control on Energy Use Through the Use of Immersive Virtual Environments," In *Proceedings of the Thirty-first International Symposium on Automation and Robotics in Construction*, Sydney, Australia, July 2014. pp: 549-556, [http://www.iaarc.org/publications/towards\\_measuring](http://www.iaarc.org/publications/towards_measuring)
- (75) Lin S\*, Gerber D. (2013) "Designing-In Performance: A case study of a net zero energy school design," In *Proceedings of the Twenty-ninth Conference on Sustainable Architecture for a Renewable Future*, Munich, Germany, September 2013, <http://mediatum.ub.tum.de/doc/1169272/1169272.pdf>
- (76) Lin S\*, Gerber D. (2013) "Designing-In Performance: Evolutionary Energy Performance Feedback for Early Stage Design," In *Proceedings of the Thirteen Conference of International Building Performance Simulation Association*, Chambéry, France, August 2013, pp: 386-393, ISBN: 978-2-7466-6294-0 [http://www.ibpsa.org/proceedings/BS2013/p\\_1036.pdf](http://www.ibpsa.org/proceedings/BS2013/p_1036.pdf)
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- (78) Lin S\*, Gerber D. (2013) "A Pedagogical Benchmark Experiment for the Application of Multidisciplinary Design Optimization in Early Stage Building Design," In *Proceedings of the 2013 ASCE International Workshop on Computing in Civil Engineering*. Los Angeles, California, USA, June 2013, pp: 802-809, ISBN: 978-0-7844-1302-9 <http://dx.doi.org/10.1061/9780784413029.100>
- (79) Batungbakal A\*, Konis K, Gerber D, Valmont E. (2013) "The Acoustic Performance of Double-Skin Glass Facades: A Design Support Tool for Architects," In *Proceedings of the BESS-SB13 CALIFORNIA: Advancing Towards Net Zero*. Pomona, California, USA. June 2013, pp: 225-230, ISBN: 9781304146656 <https://books.google.com/BESS-2013>
- (80) Batungbakal A\*, Konis K, Gerber D, Valmont E. (2013) "Implementation of Field-Assessment: A Key Element in an Acoustic Design Guide for Building Facades and Urban Soundscape," *Geodesign International Conference 2013* Beijing, China. October 2013
- (81) Gerber D, Lin S\*. (2012) "Designing-in performance through Parameterisation, Automation, and Evolutionary Algorithms: 'H.D.S. BEAGLE 1.0'," In *Proceedings of the Seventeenth International Conference on Computer Aided Architectural Design Research in Asia (CAADRIA)*, Chennai, India, April 2012, pp: 141-150, [http://cumincad.architecture.net/doc/oai-cumincadworks.id-caadria2012\\_108](http://cumincad.architecture.net/doc/oai-cumincadworks.id-caadria2012_108)
- (82) Gerber, D, El-Sheik M\*, Senel Solmaz A\* (2012) "Associative Parametric Design and Financial Optimization- 'CASH BACK 1.0', Parametric Design For Visualizing And Optimizing Return On Investment For Early Stage Design Decision-Making," In *Proceedings of the Seventeenth International Conference on Computer Aided Architectural Design Research in Asia (CAADRIA)*, Chennai, India, April 2012, pp: 47-56, [http://cumincad.scix.net/cgi-bin/works/Show?caadria2012\\_109](http://cumincad.scix.net/cgi-bin/works/Show?caadria2012_109)
- (83) Gerber D, Senel Solmaz A\*. (2012) "Para-typing the Making of Difference, Associative Parametric Design Methodologies for Teaching the Prototyping of Material Affect," In *Proceedings of the Seventeenth International Conference on Computer Aided Architectural Design Research in Asia (CAADRIA)*, Chennai, India, April 2012, pp: 233-242, [http://cumincad.scix.net/cgi-bin/works/Show?id=caadria2012\\_107](http://cumincad.scix.net/cgi-bin/works/Show?id=caadria2012_107)
- (84) Oskouie P, Gerber D, Alves T, Becerik-Gerber B. (2012) "Extending the Interactions of Building Information Modeling and Lean Construction," In *Proceedings of the Twentieth Annual Conference of the International Group for Lean Construction*, San Diego, California, USA, July 2012, ISBN: 9780744217445 <http://www.iglc.net/Papers/Details/818>

- (85) Gerber D, Flager F. (2011) "Teaching Design Optioneering: A Method for Multidisciplinary Design Optimization," In *Proceedings of the Seventeenth 2011 ASCE International Workshop of Computing in Civil Engineering*, Miami, FL, June 2011, pp: 883-890, ISBN: 978-0-7844-1182-7, [http://dx.doi.org/10.1061/41182\(416\)109](http://dx.doi.org/10.1061/41182(416)109)
- (86) Kavulya G, Gerber D, Becerik-Gerber B. (2011) "Designing In Complex System Interaction: Multi-Agent Based Systems for Early Design Decision Making," In *Proceedings of the Twenty-eight International Symposium on Automation and Robotics in Construction*, Seoul, South Korea, June – July 2011, pp: 694-698, (S21-2, 88-92 Vol. 2., ISBN: 978-89-954572-5-2, <http://www.iaarc.org/publications/fulltext/S21-2.pdf>
- (87) Gerber D, Becerik-Gerber B, Kunz A. (2010) "Building Information Modeling and Lean Construction: Technology, Methodology, and Advances from Practice," In *Proceedings of the Eighteenth Annual Conference of the International Group for Lean Construction*, Haifa, Israel, July 2010, pp: 683-693, <http://www.iglc.net/Papers/Details/737>
- (88) Gerber D, Meagher M, Huang J. (2007) "iO Walls and Digital Apothecaries, Interaction Design and Gradient Tectonics through Associative Parametric Modeling," *International Conference Tectonics Making Meaning*, University of Technology, Eindhoven, the Netherlands, December 2007

## WORKSHOP PUBLICATIONS & PROJECTS

Works in this category are refereed workshop publications and projects. Acceptance rates listed where known.

- (89) Marcolino L S, Xu H, Gerber D, Kolev B\*, Price S\*, Pantazis E\*, Tambe M. (2015) "Agent Teams for Design Problems". In *the AAMAS International Workshop on Coordination, Organisations, Institutions and Norms (COIN 2015)*, May 2015, pp: 189-204, <http://coin-aamas2015.iija.csic.es/NiceCOINProceedings.pdf>
- (90) Marcolino L S, Gerber D, Kolev B\*, Price S\*, Pantazis E\*, Tian Y, Tambe M. (2015) "Agents vote for the environment: Designing energy-efficient architecture". In *the AAAI Workshop on Computational Sustainability (AAAI 2015)*, Texas, USA, January 2015, pp: 115-119, <http://aaai.org/ocs/index.php/WS/AAAIW15/paper/view/10154>
- (91) Marcolino L S, Kolev B\*, Price S\*, Veetil S P\*, Gerber D, Musil J\*, Tambe M. (2014) "Aggregating Opinions to Design Energy-Efficient Buildings". In *the Eighth AAAI Multidisciplinary Workshop on Advances in Preference Handling (M-PREF 2014)*, Québec, Canada, July 2014, pp: 67-72, ISBN: 978-1-57735-671-4, <http://www.aaai.org/ocs/index.php/WS/AAAIW14/paper/view/8757/8284>
- (92) Pantazis E\*, Gerber D, Pantazis J. (2014) Material Swarm Articulations: The New View Reciprocal Frame Canopy, ACADIA 14: Design Agency, *Projects of the Thirty-fourth Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)* Los Angeles, California, USA, Oct 2014, pp. 127-130, ISBN: 978-1926724485 [http://cumincad.scix.net/cgi-bin/works/Show?acadia14projects\\_127](http://cumincad.scix.net/cgi-bin/works/Show?acadia14projects_127)  
**[Acceptance rate: 53%]**
- (93) Shiordia-Lopez R\*, Gerber D. (2014) Context-Aware Multi-Agent Systems: Negotiating Intensive Fields, ACADIA 14: Design Agency, *Projects of the Thirty-fourth Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)* Los Angeles, California, USA, Oct 2014, pp. 139-142, ISBN: 978-1926724485 [http://cumincad.scix.net/cgi-bin/works/Show?acadia14projects\\_139](http://cumincad.scix.net/cgi-bin/works/Show?acadia14projects_139)  
**[Acceptance rate: 53%]**
- (94) Kwak J, Varakantham P, Tambe M, Klein L, Jazizadeh J, Kavulya G, Becerik-Gerber B, Gerber D. (2011) "Towards Optimal Planning for Distributed Coordination Under Uncertainty in Energy Domains," *Second International Workshop on Agent Technologies for Energy Systems (ATES 2011) – A Workshop of the Tenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2011)*, Taiwan, May 2011

## DESIGN AND TECHNOLOGY REPORT SERIES

- (95) Gerber D. (2009) "The Parametric Affect: Computation, Innovation and Models for Design Exploration in Contemporary Architectural Practice," Design and Technology Report Series, No 2008-2, Harvard Design School, Cambridge MA (244 pages). ISBN 978-1-934510-02-5

## OTHER PUBLICATIONS

Works in this category are publications reporting on other research activities, including short papers, articles, technical reports, extended abstracts (not peer reviewed).

- (96) Gerber, D. et.al., (Project Director and Co-Author) (2020) "Digital Twin: towards a meaningful framework." A Global Research Publication, Arup University, ARUP London, United Kingdom.  
<https://www.arup.com/perspectives/publications/research/section/digital-twin-towards-a-meaningful-framework>
- (97) Gerber, D. et.al., (Project Director) (2020) "Transformative Rail: The issues facing the future of the industry" A Global Research Publication, Arup University, ARUP London, United Kingdom.  
<https://www.arup.com/-/media/arup/files/publications/t/transformative-rail.pdf>
- (98) Gerber, D. et.al., (Project Director and Co-Author) (2020) "Ready to scale Retail." A technical report for Walmart on Industrialize Construction, A Global Research Publication, Arup University, ARUP London, United Kingdom.
- (99) O'Donnell J, Gerber D, Ren S, (2017) "Bespoke and Organic: Simulation toward Simplification, Repetition, and Rationalization" ACSA Journal of Technology | Architecture + Design Volume 1: Issue 2, Simulations: Modeling, Measuring, and Disrupting Design, November 2017, pp 150-154
- (100) Heydarian A\*, Pantazis E\*, Gerber D, Becerik-Gerber B. (2015) "Use of Immersive Virtual Environments to Understand Human-Building Interactions and Improve Building Design," Extended abstract (Poster), Human Computer Interaction (HCI) International 2015, Volume 528 of the series Communications in Computer and Information Science, pp 180-184
- (101) Abraham K, Flager F, Macedo J, Gerber D, Lepech M. (2014) "Enhancing Pre-Construction Decision-Making on Sustainable Commercial Building Projects", Center for Integrated Facility Engineering, Technical Report #TR217, October 2014, Stanford University, pp: 1-15, <http://cife.stanford.edu/sites/default/files/TR217.pdf>
- (102) Becerik-Gerber B, Gerber D, Yang Z, Heydarian A\*, Carneiro J\*. (2014) "Integrated Cyber Social and Physical Systems for Sustainable Built Environments," Extended Abstract for the US-Israel Workshop on: Industrial Ecology in Multi Scale Design and Construction of Sustainable Built Environments, March 2014, Tel Aviv, Israel
- (103) Batungbakal A\*, Konis K, Gerber D, Valmont E. (2013) "The Influence of Field Assessment on the Acoustic Performance of Double-Skin Facades," *CISBAT 2013 International Conference* Poster Session A at Ecole Polytechnique Federale de Lausanne (EPFL) -Lausanne, Switzerland. September 4, 2013, pp: 957-962, ISBN: 978-2-8399-1280-8, [http://infoscience.epfl.ch/record/190600/files/CISBAT2013\\_proc\\_Vol1\\_online.pdf](http://infoscience.epfl.ch/record/190600/files/CISBAT2013_proc_Vol1_online.pdf)
- (104) Gerber D, Lin S\*, Pan B. (2011) "Design Optioneering: Variation Exploration Correlation: H.D.S. Beagle Manual and Technical Report," (196 pages) submitted December 2011, Autodesk Inc.
- (105) Gerber D, Flager, F. (2011) "Teaching Design Optioneering: A Method for Multidisciplinary Design Optimization", Center for Integrated Facility Engineering, Technical Report #TR203, June 2011, Stanford University <http://cife.stanford.edu/node/713>
- (106) Harvey R, Bahgat T, Gerber D, Kotronis J, Pysh D. (2009) Co-Authored: "Building Information Modeling (BIM) as a Risk Management Platform Enabling Integrated Practice and Delivery," Journal of Building Information Modeling, December 2009, [https://www.wbdg.org/pdfs/jbim\\_fall09.pdf](https://www.wbdg.org/pdfs/jbim_fall09.pdf)

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## AWARDED FUNDING

### EXTERNAL FUNDING

My percentage of the funding is listed below in parentheses. Total aggregate external funding awarded while at USC as PI or Co-PI is \$1,760,506; of this Dr. Gerber's share is \$517,886.

- (1) **Borchard Foundation.** Principle Investigator (100%). *Descriptive Surfaces, From Desargue to De Casteljau and Their Mathematical Influence on Instrumental and Design Knowledge in Architecture*. 2016- 2017. \$30,000.  
\*Competitively awarded
- (2) **National Science Foundation SEP (Sustainable Energy Pathways).** Co-Principle Investigator (22%). *Creating an Energy Literate Society of Humans, Buildings, and Agents for Sustainable Energy Management*. 2012-2017. \$1,550,000. \*Competitively awarded
  - a. **Research Experience for Undergraduates (REU) Supplement.** (50%). 2015-2016. \$18,678.
  - b. **Research Experience for Undergraduates (REU) Supplement.** (50%). 2013-2014. \$19,828.
- (3) **Autodesk Idea Studio Grant.** Principle Investigator (100%). *Design Agency: Informing Mediated Form*. 2014-2015. \$30,000. \*Competitively awarded
- (4) **Autodesk Idea Studio Grant.** Principle Investigator (100%). *Design Optioneering: Variation-Exploration-Correlation*. 2011-2012. \$40,000. \*Competitively awarded
- (5) **Autodesk Educational Unrestricted Gift.** Principle Investigator (100%). *Design Automation and Web Based Design Intelligence*. 2012. \$5,000.
- (6) **Gehry Technologies Technology Grant.** Principle Investigator (100%). *Digital Project*. 2011-2013. \$67,000.
- (7) **SOM Educational Grant.** SCI-Arc Principal Investigator (100%). *Informing Form through Design and Computation in Practice*. 2008. \$30,000.

### INTERNAL FUNDING

My percentage of the funding is listed below in parentheses. Total aggregate internal funding awarded while at USC as PI or Co-PI is \$68,400; of this Dr. Gerber's share is \$55,400.

- (1) **USC Undergraduate Research Associates Program (URAP).** Principal Investigator (100%). *Design Agency: Emergent Performance in Architecture Through Digital Simulation and Physical Prototyping*. 2015. \$4,800.
- (2) **Visions & Voices Provost's Arts & Humanities Initiative Grant.** Principal Investigator (100%). *An Evening with Zaha Hadid*. 2014. \$28,000.
- (3) **USC School of Architecture Graduate Student Researcher (GRS) Program.** Principal Investigator (100%). *Design Research Support*. 2012, 2013, 2014. \$3,000 approx.
- (4) **USC Center for Scholarly Technology C3 Grant.** Principal Investigator (100%). *Technology Support for Teaching*. 2013, \$5,000.
- (5) **USC Undergraduate Research Associates Program (URAP).** Principal Investigator (100%). *Prototyping Pavilions of Interaction in Architecture*. 2012-2013. \$6,600.
- (6) **USC Fund for Innovation in Undergraduate Teaching (FIUT).** Co-Principal Investigator (50%). *Pioneering Interactive Architecture: Integrating Technology, Media and Robotics*. 2012-2013. \$6,000.
- (7) **USC Center for Scholarly Technology C3 Grant.** Principal Investigator (100%). *Technology Support for Teaching*. 2012. \$5,000.
- (8) **Zumberge Collaborative Grant.** Senior Personnel. *Towards Interactive Architecture*. 2010-2011. (\$10,000).

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## SCHOLARLY ACTIVITIES

This category includes a selection of invited lectures, design computing workshops, short design studios, and panels. It does not list the presentations of the published papers for conferences, symposiums, and workshop proceedings.

### In Academia (non-USC)

- (1) **Keynote Lecture**, (2021) Advanced Architectural Geometry (AAG) 2021, April 28-29, Ecole des Ponts ParisTech, Paris France: <https://www.aag2020.com/>
- (2) **Lecture**, "*Parametric Tendencies and Design Agencies*" (2021) University Polytechnico de Catalunya (UPC) Barcelona Lecture on Design and Computation
- (3) **Lecture**, "*Doppelgängers, Digital Twins & the Design Imperatives*" (2021) Technical University of Delft, Robotic Building Group Prof. Bier: Delft Holland 2021 [www.roboticbuilding.eu](http://www.roboticbuilding.eu)
- (4) **Lecture**, (2019), Harvard University Graduate School of Design SCI 6367: Design from Within: How New Immersive Technologies Create Value, course lecture.
- (5) **Keynote Lecture**, (2018) "*Research Matter(s)... Architecture, Engineering, and Technology*" SimAUD 2018, Technical University of Delft, Holland (<http://www.simaud.org/2018/program.php>)
- (6) **Lecture** (2018) "*Research Matter(s)*" Welsh School of Architecture, Cardiff, United Kingdom
- (7) **Lecture**, (2017) "*Parametric Tendencies and Design Agencies*" École d'architecture de la ville & des territoires à Marne-la-Vallée, France
- (8) **Lecture**, (2016) "*Parametric Tendencies and Design Agencies*" Technical University of Delft, Holland  
**Workshop Participant**, "*DoubleFace2.0*"
- (9) **Lecture**, (2016) "*Plausible Futures | Parametric Tendencies and Design Agencies*" Design Media Laboratory, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland
- (10) **Co-Moderator & Co-Organizer**, (2016) Special Focus Session "*Positions On Smart Environments*" for the Association of Collegiate Schools of Architecture's (ACSA) Annual Conference 2016, Seattle Washington, in collaboration with Assoc. Prof. Mona El Khafif
- (11) **Lecture**, (2015) "*Parametric Tendencies and Design Agency*"  
**Workshop Instructor**, "*Revisiting Felix Candela with Digital Tools*" Anahuac University, Mexico City, Mexico
- (12) **Lecture**, (2015) "*Design Optioneering: A Method for Multidisciplinary Design Optimization*" Stanford University, California, USA
- (13) **Lecture**, (2014) "*Parametric Tendencies and Design Agency*"  
**Studio Instructor**, Advanced Design Computation Summer Course, (2 weeks)  
"*Design Agency | Informing Form Through Agent Based Performance*"  
Tsinghua University School of Architecture, Beijing, China
- (14) **Speaker & Panelist**, (2014) "*Parametric Urbanism*" Urban Formations Symposium Architectural Association (AA) Visiting School, Shanghai, China
- (15) **Workshop Instructor** (2014) "*Holistic creativity: Swiss standard for performative building design*" for CAADRIA 2014 Kyoto Institute of Technology, Kyoto, Japan (in collaboration with Michael Walczak and Odilo Schoch)
- (16) **Lecture**, (2014) "*Parametric Tendencies and Design Agency*" University of Tokyo, School of Architecture, Tokyo, Japan
- (17) **Invited Workshop Participant**, (2013) "*Thermal Reticulations*" Workshop Smart Geometry Conference, UCL The Bartlett, London, England

- (18) **Lecture**, (2013) *"Bits, Bots, and Interactive Architecture"*  
IMAC Laboratory, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland
- (19) **Lecture**, (2013) *"Parametric Tendencies | Design Agencies for Informing Form"*  
Istanbul Technical University, Istanbul, Turkey
- (20) **Lecture**, (2013) *"Parametric Tendencies | Design Agencies for Informing Form"*  
Middle East Technical University, Ankara, Turkey
- (21) **Lecture**, (2013) *"Design Agency | Informed Form"*  
**Workshop Instructor**, *"Design Agency | Informed Surface Tectonics"*  
Ozyegin University, Istanbul, Turkey
- (22) **Lecture**, (2013) *"Design Agency | Informing Form through Bits, Bots, and Interaction"*  
**Studio Instructor**, **Advanced Design Computation Summer Course**, (2 weeks)  
*"Design Agency | Lost and Form Found"*  
Tsinghua University School of Architecture, Beijing, China
- (23) **Lecture**, (2012) *"Mesh Walking & Slip Streaming: re-Informing Form through Parametric Design & Multi-agents"*  
**Workshop Instructor**, *"Parametric Design in Architecture and Urbanism a Digital Project Workshop"*  
Tsinghua University, School of Architecture, Beijing, China
- (24) **Lecture**, (2011) *"Building Information Modeling and Design Computing, An Architects Perspective"*  
Toyohashi University of Technology, Toyohashi, Japan
- (25) **Lecture**, (2011) *"The Evolution of BIM & Technology Enabled Practice, Advances in Managing Design Complexity"*  
Architecture Institute of Japan, Tokyo, Japan
- (26) **Speaker & Panelist**, (2011) Hawaii International Conference on Systems Science, Maui, USA  
*Interactive Architecture Symposium*  
1: *"Interactive Architecture: Urbanisms, Systems, Environments, Architecture, Tools & Methods"*  
2: *"A Taxonomy for Interactive Architecture: Cases, Systems, Materials, and Affects"*
- (27) **Panelist**, (2011) *"BIM Education for Students of Architecture, Engineering and Construction"*  
BIM Education Workshop, Technion University, Haifa, Israel
- (28) **Lecture**, (2010) *"Parametric Practices: Models for Design Exploration in Architecture; Information Innovation & Notions of Para-Typing," \*Inaugural Digital Media Lecture\**  
Iowa State University College of Design, Iowa, USA
- (29) **Lecture**, (2009) *"Informing Form"* Programa de Lideres Academicos  
**Workshop Instructor**, *"Parametric Design in Architecture and Urbanism a Digital Project Workshop"*  
Technologico De Monterrey University, Guadalajara Campus, Mexico
- (30) **Lecture**, (2009) *"Constructing Complexity"* "High Impact Architecture"  
\*SAARQ 14<sup>th</sup> Annual Congress of International Architects\*  
Technologico De Monterrey University, Mexico
- (31) **Lecture**, (2009) *"Parametric Practices: Models for Design Exploration in Architecture and Urbanism"*  
Annual Symposium on New Digital Techniques in Architecture,  
Xi'an University of Architecture and Technology, Xian, China
- (32) **Lecture**, (2009) *"Parametric Practices: Models for Design Exploration in Architecture and Urbanism"*  
Tsinghua University School of Architecture, Beijing, China
- (33) **Workshop Instructor**, (2009) *"Knowledge Patterns Scripting in Digital Project"* for "FLUX: Architecture in a Parametric Landscape" at the California College of the Arts, School of Architecture, San Francisco, CA, USA
- (34) **Workshop Instructor**, (2009) *"Parametric Design in Architecture and Urbanism a Digital Project Workshop"*  
The City University of New York (CUNY), School of Technology & Design, NY, USA
- (35) **Lecture**, (2008) *"Parametric Practices: Models for Design Exploration in Architecture and Urbanism"*  
**Workshop Instructor**, *"Parametric Design in Architecture and Urbanism a Digital Project Workshop"*  
Tecnológico de Monterrey University, Monterrey, Mexico

- (36) **Workshop Instructor**, (2008) *"Parametric Design a Digital Project Workshop"*  
Southern California Institute of Architecture, Los Angeles, USA
- (37) **Lecture**, (2008) *"Parametric Practices and Design Optimization"*  
Columbia University, GSAAP, Master Real Estate Development Lecture Series, New York, USA
- (38) **Lecture**, (2008) *"Parametric Design in Architecture and Urbanism"*  
The City University of New York (CUNY), School of Technology & Design, NY, USA
- (39) **Organizer & Moderator**, (2006) *"Ornament....?"* Critical Digital presents: A round table with Professors Picon, MacDonald, Jarzombek, and Goulthorpe, Harvard University, Graduate School of Design
- (40) **Workshop Organizer**, (2006) *"Smart Geometry and Generative Components"*  
Harvard University, Graduate School of Design
- (41) **Workshop Instructor**, (2006) *"Parametric Modeling: Architectural Screens and Laboratory Branding, Design Exploration and Variational Functionalism, Product Models and Fabrication Systems"*  
Design Media Laboratory, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland
- (42) **Workshop Instructor**, (2000) *"4D in Architecture, Animation and Kinematics as Generative Design Operators"*  
Innsbruck Technical University, School of Architecture, Innsbruck, Austria

#### In Academia (USC)

- (43) **Lecture**, (2012) *"Recent Work"* USC School of Architecture, Lecture Series
- (44) **Workshop Instructor**, (2012) *"Maya Modeling and Visualization"*  
USC American Academy in China, at Tongji University, Shanghai, China
- (45) **Lecture**, (2011) *"Parametric Practices; Information Innovation and Notions for Para-Typing"*  
**Workshop Instructor**, *"Parametric Design and Rule Bases for Serial Differentiation"*  
USC American Academy in China, at Tongji University, Shanghai, China
- (46) **Lecture**, (2010) *"Parametric Practices- Models for Design Exploration in Architecture and Urbanism"*  
USC Viterbi School of Engineering, W.V.T. Rusch Engineering Honors Colloquium Lecture
- (47) **Panelist & Moderator**, (2009) *"Intensive Fields Symposium"*  
USC School of Architecture, Los Angeles, CA, USA

#### In Industry

- (48) **Speaker**, (2019) at SOM Foundation and IIT College of Architecture International Research and Design Forum in Chicago, IL.
- (49) **Speaker**, (2018) *"Data Matter(s)" Leadership Summit on Technology and Applied Innovation*, Design Futures Council, San Diego, CA
- (50) **Invited Talk**, (2016) *"Plausible Futures, Parametric Tendencies, Pluri-potency, and Architectural Personalities"*  
WHY Architects, Los Angeles, CA
- (51) **Lecture**, (2015) *"Paradigms in Computing: Building Information Modeling, Simulation, an Information Revolution for Architecture, Engineering, and Construction"*  
SINDUSCON Annual Conference, Sao Paulo, Brazil
- (52) **Invited Talk**, (2015) *"Parametric Tendencies and Design Agencies | Notes from the Lab: Data, Models, Modes and Discipline(s)"*, Morphosis Architects, Culver City, CA
- (53) **Lecture**, (2014) *"Parametric Tendencies and Design Agencies, Preparing for the AEC Industry through Design Centric Collaboration and Performance"* Dassault Systemes 3D Experience Forum, Las Vegas, NV
- (54) **Speaker & Panelist**, (2013) *"Tomorrow's Employee: Industry Expectations of Digital Designers"*  
**Speaker & Panelist**, *"Tomorrow's Students: Case Study Presentation Demonstrating Incorporation of the Cloud and Workflow in Design Education"*  
Autodesk University, Las Vegas, NV
- (55) **Lecture**, (2012) *"Design Computation Research in Education"* Birds of Feather Educational Summit  
**Panelist**, *"Autodesk 360: Practical Use Cases"*

Autodesk University, Las Vegas, NV

(56) **Panelist**, (2012) *"Bits, Bots, and Interactive Architecture"*

Construction Owners Association of America Conference, Orlando, Florida

(57) **Lecture**, (2011) *"The Evolution of BIM & Computation for Architecture, Engineering, & Construction"*

SINDUSCON Annual Conference, Sao Paulo, Brazil

(58) **Organizer & Moderator**, (2009) *"Building Fluency, Platforms for BIM Innovation"*

A Gehry Technologies LLC Symposium, The Building Center, London, UK

(59) **Panelist**, (2008) *"Implementing BIM: Risks, Challenges and Rewards"*

National Collegiate Facilities Management Technology Conference, Los Angeles, CA

(60) **Panelist**, (2008) *"Integrated Project Delivery, BIM and Risk"*

Construction Super Conference, San Francisco, CA

(61) **Panelist**, (2008) *"Extended Use of BIM for an Integrated Construction Management Practice"*

"Ahead of the Curve – On Top of the Trends" CMAA National Conference, San Francisco, CA

(62) **Speaker & Panelist**, (2008) *"BIM and Higher Education Transformation"*

Architecture Engineering & Construction Science and Technology Conference, 7-10 Dec., Washington DC

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## PRODUCTION CREDITS

This category includes film production credits, featuring my work as an educator, researcher, lead designer or significant contributor.

- (1) Co-Producer, *"Lives not Grades,"* Feature Documentary for PBS, 2021 (with Director and Producer Daniel Druhora, and co Producers Dr. Burcin Becerik Gerber and Brad Cracchiola)

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## EXHIBITIONS AND APPEARANCES

This category includes a selection of exhibitions and books by others, featuring my work as a researcher, lead designer or significant contributor. It does not include magazine articles, and scholarly citations of my research by others.

- (2) *"Agent Based Thickness of Shell Structures,"* (2016) Architectural Association Visiting School, Shanghai China, Shanghai 10, Curated by Tom Verebes
- (3) *"The Beagle Project: Multidisciplinary Design Optimization"* (2015) In article by Neil Leach, AD Architectural Design, *Mass-Customised Cities*, guest-edited by Tom Verebes, John Wiley & Sons, Ltd., The Atrium, Southern Gate, Chichester, PO19 8SQ, England.
- (4) *Slipstream and Multi Agent Systems for Architecture "Bicycle Shelter"* (2013) In Digital Workshop in China, Yuan P, Leach N. (co-Editors) Tongji University Press, Shanghai, pp: 111, ISBN 978-7-5608-5175-4
- (5) *"Design optioneering: variation, exploration, correlation,"* (2012) Autodesk Gallery Permanent Collection, San Francisco, CA, USA
- (6) *"Design optioneering: variation, exploration, correlation,"* (2012)  
Autodesk University, part of Autodesk curated exhibition, Las Vegas, NV, USA
- (7) *"Design optioneering: variation, exploration, correlation,"* (2012)  
Technology Entertainment & Design Conference TED Global 2012, Travelling exhibition
- (8) *"Design optioneering: variation, exploration, correlation,"* (2012)  
Technology Entertainment & Design Conference TED 2012: Full Spectrum, Long Beach, CA, USA



- (9) *"SCI Arc + SOM Design Computation Research,"* (2008) Exhibited at the Design Process Innovation Symposium A+D Museum, Los Angeles, CA, USA
- (10) *"Spatial Alliances" in collaboration with Freyr Frostason and Emanuel Bringer,* (2008), AADRL Documents 2, DRL TEN: A Design Research Compendium, edited by T. Verebes et.al. Architectural Associations Publications, London, UK, 2008, pp. 214-215, ISBN: 978-1-902902-65-4
- (11) *"Spatial Alliances" in collaboration with Freyr Frostason and Emanuel Bringer,* (2005), AADRL Documents 1, Corporate Fields: New Office Environments by the AA DRL, edited by B. Steele, Architectural Associations Publications, London, UK, 2005, pp: 238-245, ISBN: 978-1-902902-41-86
- (12) *"Zaha Hadid Space for Art,"* (2004) Contemporary Art Center Cincinnati; ed M. Dochantschi, Lars Muller, Switzerland, ISBN 978-3-03778-005-3 [Project Credits]
- (13) *"Zaha Hadid, one north Masterplan, Singapore,"* (2003), "Prototipo #008 Gravity and Grace," Stereomatrix, Lisbon, Portugal, ISSN: 0874-4513 [Project Credits]
- (14) *"Zaha Hadid, one north Masterplan, Singapore,"* (2002) UME 14 edited by Haig Beck, Victoria, Australia, ISBN 10375872 [Project Credits]
- (15) *"Zaha Hadid 1996-2001,"* (2002) El Croquis 103, Madrid, Spain, ISSN 0212-5683 [Project Credits]
- (16) *"Spatial Alliances" in collaboration with Freyr Frostason and Emanuel Bringer,* (2001), in AD Architectural Design, *Young Blood*, guest edited by Neil Spiller; London: Wiley Academy Editions, Vol. 71, No 1, pp: 14-17, ISBN 0-471-49628-6
- (17) *"Spatial Alliances" in collaboration with Freyr Frostason and Emanuel Bringer,* (2000), AA Projects Review, edited by M. Mostafavi, Architectural Associations Publications, London, UK, July 15, ISBN: 1902902149
- (18) *"Spatial Alliances" in collaboration with Freyr Frostason and Emanuel Bringer,* (2000), FORM, Design in Iceland; Kjarvalsstadir, Iceland, ISBN: 978-9979-60-586-3

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## TEACHING RECORD

### New Courses Developed at USC

**ARCH 488: Integrated Engineering and Design Capstone: CE Building Science Program** 2021-pending  
*Capstone*, USC, School of Architecture, ABET accreditation (2 Units)

This course simulates the integrated design and engineering of a project in collaboration and concert with other Civil Engineering disciplines including construction, structural engineering, environmental engineering, building sciences and design disciplines. It provides engineering, architectural and building science disciplines to collaborate on the demonstration of knowledge gained as a capstone experience. The capstone bring students together along with professional and academic experts to demonstrate technical resolution of a simulated real world project inclusive of conflict resolutions; complex coordination, of budgets, schedules, and objectives; decision making and trade offs; and design and engineering problem solving, modeling, simulation, and documentation.

**CE 578 Technology-Enabled Architecture, Engineering and Construction (AEC) Projects** 2019-Present  
*Graduate Level*, USC, Department of Civil and Environmental Engineering (4 Units) (cross listed with ARCH 578)

Integration of architecture, engineering, and construction practices through the development of capstone project(s).

This course simulates the working practices in the architecture, engineering and construction (AEC) industry. Students will work in teams and be responsible for designing, developing, estimating, scheduling, and administering the work for a small commercial or

residential project. Each student in a team will assume an AEC role such as the designer, scheduler, structural engineer, cost engineer, etc. An important instrument to facilitate the collaboration will be the use of technology. In this course, technology is explored as a catalyst for change, poised to reduce the industry's fragmentation, improve its efficiency, and increase effectiveness and as a key driver to increase productivity. The emphasis is on understanding the capabilities of methods and technologies so that the appropriate tools, systems, and equipment can be implemented for an AEC project. The course is not intended to teach the skills required to design, engineer, construct, and manage but to cover topics that aid in the demonstration of these previously acquired skills in the program and the integration and decision making that must be made in the development of a construction project.

**CE 573 Advanced Technologies in AEC Practices, *Graduate Level*, USC, Department of Civil and Environmental Engineering (4 Units)**

2019-Present

Understanding the capabilities of modeling, simulation, data centric engineering paradigms and technologies and their applications for Architecture, Engineering, and Construction (AEC) projects or challenges.

The architecture, engineering and construction (AEC) industry is facing enormous technological and institutional changes and challenges. One very important instrument to facilitate these changes and the digital transformation of the AEC industry is the use of technology. The 21st century designers, architects, engineers and construction managers must be able to manage and harness the rapid pace of technological change, a highly interconnected world, and complex projects that require creative and technologically enabled solutions. In this course technology is argued to be a catalyst for change, poised to reduce the industry's fragmentation, improve its' efficiency, effectiveness and as a key catalyst to increase productivity. Students will learn about a series of state-of-the-art technologies and their applications in design, architecture, engineering and construction management functions including for example advanced modeling and analysis technologies and techniques, automation technologies, optimization, visualization, integration platforms, management systems, foresight techniques, AI and machine learning in the AEC and design thinking and innovation strategies and methodologies. The emphasis is on understanding the capabilities of available and developing technologies so that the appropriate tools, systems, equipment, and methods can be implemented for a particular AEC function, project or challenge.

**CE 486 A & B: Special Topics: Innovation in Engineering Design for Global Grand Challenges Part 1 & Part 2, *Undergraduate Level*, USC, Department of Civil and Environmental Engineering**

2018-Present

The course aims to teach engineering students how to lead the design of products, services and technologies with a human-centered approach to help solve the needs of the real people who are in the middle of these crises. The course is geared towards students who would like to create new solutions, are comfortable with focusing on wicked problems, and care about cultural, economic and geographic nuances. The course is built on the principles of "create, collaborate, innovate." The course provides students with an understanding of the design process, research methodologies and innovation strategies using a team-based project work through the process of observation, visualization, rapid prototyping and iteration. The course has two parts: Part 1 (Fall semester) and Part 2 (Spring semester). Over the course of one year, 24 USC students in Los Angeles and 12 refugees in a host nation will form a taskforce to seek at least four life-saving or life-

improving innovations aimed at the most vulnerable and hardest-to-reach people impacted by the refugee crisis. These innovations will involve connection to the private sector and input from affected communities in order to provide, supply, or locally generate solutions such as: safe drinking water and sanitation, provision of energy, education, life-saving information, shelter or services to help refugees living in camps and in squats.

**ARCH 574: Parametric Design**, *Graduate Level Elective*, USC, School of Architecture 2009–2016

An in depth historical, technical and critical inquiry into the reasons and uses for parametric design and its relationship to contemporary form, fabrication, and construction of the built environment. Includes instruction into the use and development of parametric models for design exploration, and prototyping. \*Formerly ARCH 417 and ARCH 599

**ARCH 564: Descriptive & Computational Architectural Geometry**, *Graduate Level Elective and Required Core Curriculum for M. Arch Degree*, USC, School of Architecture 2014- 2016

Introduction to the history, methods, and cases of descriptive and computational geometry impacting representational, modeling, and historically significant paradigms of architectural design. Introduces a range of geometric first principles, technologies and techniques through contemporary design tools and theoretical and practice examples.

**ARCH 599: Topics in Design and Computation: “Design Agency”** *Graduate Level Elective*, USC, School of Architecture 2013

Introduction into the use of generative scripting systems and the concept of design agency for design and architecture in 2D, 3D, animated formats and 3D printed outputs. Special emphasis is on providing students background and ability in the techniques, algorithms, and application for design production. Includes instruction into the use and development of *Processing* a JAVA based programming language.

## Courses Taught at USC

### Design Studios

- (1) **ARCH 305B**, Undergraduate architecture CE B. Science core design studio. (4 Units, 4 contact hours/ week)
  - 2021 Spring (11 students; Instructor Evaluation: ; Course Evaluation: )
  - 2020 Spring (6 Students; Instructor Evaluation: ; Course Evaluation: )
  - 2019 Spring (7 Students; Instructor Evaluation: ; Course Evaluation: )
  - 2018 Spring (4 Students; Instructor Evaluation: ; Course Evaluation: )
- (2) **ARCH 305A**, Undergraduate architecture CE B. Science core design studio. (4 Units, 4 contact hours/ week)
  - 2020 Fall (11 Students; Instructor Evaluation: 4.0; Course Evaluation: 4.0 )
  - 2019 Fall (7 Students; Instructor Evaluation: 4.0; Course Evaluation: 4.0 )
  - 2018 Fall (7 Students; Instructor Evaluation: ; Course Evaluation: )
- (3) **ARCH 102B**, Undergraduate architecture B. Arch core design studio. (6 Units, 8 contact hours/ week)
  - 2016 (14 Students; Instructor Evaluation: 4.86; Course Evaluation: 3.98)
  - 2015 (13 Students; Instructor Evaluation: 4.75; Course Evaluation: 3.98)
  - 2014 (15 Students; Instructor Evaluation: 4.46; Course Evaluation: 4.18)
- (4) **ARCH 705/702**, “LACMA++” Graduate Architecture M. Arch post professional and option design studio. (6 Units, 12 contact hours/ week)
  - 2015 (12 Students; Instructor Evaluation: 5.00 (ARCH 705) & 4.00 (ARCH 702); Course Evaluation: 5.00 (ARCH 705) & 4.00 (ARCH 702))

- (5) **ARCH 702/402/693B**, "LACMA++" Graduate and undergraduate architecture option design studio. (6 Units, 12 contact hours/ week)  
2014 (8 Students; Instructor Evaluation: 5.00 (ARCH 702) & 3.00 (ARCH 402) & 5.00 (ARCH693B); Course Evaluation: 5.00 (ARCH 702) & 3.59 (ARCH 402) & 4.43 (ARCH 702))
- (6) **ARCH 605A**, Graduate Architecture M. Arch post professional and option design studio. (6 Units, 12 contact hours/ week)  
2013 "LACMA++" (13 Students; Instructor Evaluation: 4.20; Course Evaluation: 4.67)  
2011 "Deep Skin ... Skin Deep" (13 Students; Instructor Evaluation: 3.75; Course Evaluation: 3.82)  
2010 "Performative Structure" (Coordinated 3 sections of 40 students) (15 Students; Instructor Evaluation: 4.43 Course Evaluation: 4.14)
- (7) **ARCH 402A**, "Skin Deep" Undergraduate Architecture B. Arch core design studio (6 Units, 12 contact hours/ week)  
2012 (15 Students; Instructor Evaluation: 4.20; Course Evaluation: 4.30)
- (8) **ARCH 402B**, "Vertical Urban Studio" Undergraduate architecture B. Arch core design studio. Co-taught. (6 Units, 12 contact hours/ week)  
2011 (15 Students; Instructor Evaluation: 4.50; Course Evaluation: 4.25)
- (9) **ARCH 202B**, Undergraduate architecture B. Arch core design studio. (6 Units, 12 contact hours/ week)  
2010 (15 Students; Instructor Evaluation: 3.64; Course Evaluation: 3.73)

#### Technical Courses:

- (1) **CE 578 Technology-Enabled Architecture, Engineering and Construction (AEC) Projects** *Graduate Level*, USC, Department of Civil and Environmental Engineering (4 Units) (cross listed with ARCH 578)  
2021 Spring (28 Students; Instructor Evaluation: ; Course Evaluation: )
- (2) **CE 573 Advanced Technologies in AEC Practices**, *Graduate Level*, USC, Department of Civil and Environmental Engineering (4 Units)  
2020 Fall (12 Students; Instructor Evaluation: 4.00 ; Course Evaluation: 3.75)  
2020 Fall (7 Students; Instructor Evaluation: 4.33 ; Course Evaluation: 4.00)  
2020 Spring (15 Students; Instructor Evaluation: 4.17 ; Course Evaluation: 4.00)
- (3) **CE 486 A&B (formerly CE 499)** Special Topics: Innovation in Engineering Design for Global Challenges I & II, Undergraduate elective course (3 Units, 3 contact hours/ week)  
2021 Spring (2 Units)(28 students; Instructor Evaluation: ; Course Evaluation: )  
2020 Fall (2 Units) (28 students; Instructor Evaluation: 4.50; Course Evaluation: 4.75)  
2020 Spring (2 Units) (22 students; Instructor Evaluation: 4.76; Course Evaluation: 5.00)  
2019 Fall (2 Units) (24 students; Instructor Evaluation: 4.55; Course Evaluation: 4.95)  
2019 Spring (3 Units) (22 students; Instructor Evaluation: 4.32; Course Evaluation: 4.63)  
2018 Fall (3 Units) (26 students; Instructor Evaluation: ; Course Evaluation: 4.22)
- (4) **CE 570**, "Building Information Modeling and Integrated Practice" Civil and Environmental Engineering, Graduate elective course (3 Units, 3 contact hours/ week)  
2018 Fall (12 students; Instructor Evaluation: ; Course Evaluation: )  
2018 Spring (15 students; Instructor Evaluation: ; Course Evaluation: )
- (5) **ARCH 574**, "Parametric Design" Graduate and Undergraduate architecture elective. (2 Units, 4 contact hours/ week)  
2014 (17 students; Instructor Evaluation: 4.50; Course Evaluation: 4.00)  
Taught as *ARCH 599* below (3 Units, 3 contact hours/ week):  
2012 (4 students; Instructor Evaluation: 4.00; Course Evaluation: 5.00)  
2011 (22 students; Instructor Evaluation: 4.09; Course Evaluation: 4.09)
- (6) **ARCH 564**, "Descriptive and Computational Architectural Geometry" Graduate M. Arch core requirement (2 Units, 4 contact hours/ week)

- 2016 (81 students; Instructor Evaluation: 3.81; Course Evaluation: 3.42)  
 2015 (43 students; Instructor Evaluation: 3.39; Course Evaluation: 3.13)  
 2014 (64 students; Instructor Evaluation: 2.56; Course Evaluation: 2.26)
- (7) **ARCH 599**, “*Topics in Design and Computation | Design Agency*” Graduate architecture elective. (3 Units, 3 contact hours/ week)  
 2013 (10 students; Instructor Evaluation: 4.00; Course Evaluation: 4.40)
- (8) **ARCH 526**, “*Professional Practice: Legal and Economic Context, Project Documentation*” Graduate and undergraduate architecture B. Arch and M. Arch core requirement. Co-taught. (3 Units, 4 contact hours/ week)  
 2012 (154 students; Instructor Evaluation: 3.64; Course Evaluation: 3.39)  
 2011 (140 students; Instructor Evaluation: 3.14; Course Evaluation: 2.93)  
 2010 (140 students; Instructor Evaluation: 3.29; Course Evaluation: 2.82)
- (9) **ARCH 417**, “*Computer Programming in Architecture*” Graduate and undergraduate architecture elective. (3 Units, 3 contact hours/ week)  
 2010 (22 students; Instructor Evaluation: 4.00; Course Evaluation: 4.00)  
 2009 (22 students; Instructor Evaluation: 4.00; Course Evaluation: 3.89)
- (10) **CE 470**, “*Building Information Modeling and Integrated Practice*” Civil and Environmental Engineering, Undergraduate elective course (3 Units, 3 contact hours/ week)  
 2009 (30 students; Instructor Evaluation: 3.00; Course Evaluation: 3.09)
- (11) **ARCH 410**, Graduate and undergraduate architecture elective. (3 Units)  
 Summer 2013 (10 Students) “*Revit Modeling and Performance Driven Design*”  
 Summer 2012 (10 Students) “*Maya Modeling and Dynamics*”

#### Directed Research

- (12) 2020, **CE 490** Manuel Benitez *Designing a Passively Actuated Shading System for Building Retrofits.*
- (13) 2020, **CE 590** (Green Technologies Program) Kyle Nauman, *Sustainable Retrofit Design Framework Case Study for Multifamily Housing Structure.*
- (14) 2020, **ENG 395**, Adnan Solanki, “Industrial Experience with ENCLOS”
- (15) 2015, **ARCH 590**, “*Reciprocal Agency,*”  
 (1 student, 6 Units, 6 contact hours/ week) Graduate M. Arch architecture elective.
- (16) 2015, **ARCH 590**, “*Parametric Design and Prototyping in the 3DS Experience Platform,*”  
 (2 students, 2-3 Units, 2 contact hours/ week) Graduate M. Arch architecture elective.
- (17) 2011-12, **ARCH 590**, “*Performative Membranes: Parametric Experiments for Surface Tiled Daylight Harvesting,*”  
 (2 students, 2-3 Units, 2 contact hours/ week) Graduate M. Arch architecture elective.
- (18) 2010, **ARCH 590**, “*Parametric Ontology,*”  
 (2 Students, 2 Units, 4 contact hours/ week) Graduate M. Arch architecture elective.

#### Academic Design Critic and Juries

- (1) Institute of Architecture / die Angewandte: Final Reviews Studio Lynn Vienna, Austria 2020
- (2) Ecole Nationale des Ponts et Chaussees (ENPC), Advanced Master Design by Data Program, France, 2016
- (3) Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland 2016
- (4) Harvard University Graduate School of Design, MA, USA, 2004, 2005, 2006, 2015
- (5) Southern California Institute of Architecture, CA, USA, 2006, 2015
- (6) University of California Berkeley, College of Environmental Design, CA, USA, 2014
- (7) University of California Los Angeles, School of Architecture and Urban Design, CA, USA, 2007, 2014
- (8) Architectural Association (AA), Design Research Laboratory, London UK, 2013
- (9) California College of Art (CCA), San Francisco, CA, USA, 2012
- (10) Tsinghua University, Beijing, China, 2011-2012

- (11) Toyohashi University of Technology, Toyohashi, Japan, 2011
- (12) Tec de Monterrey, Guadalajara, Mexico, 2009
- (13) Tec de Monterrey, Monterrey, Mexico, 2008
- (14) Stevens Institute, NJ, USA, 2006
- (15) Massachusetts Institute of Technology (MIT), MA, USA, 2004
- (16) Boston Architecture Center, MA, USA, 2003
- (17) Innsbruck TU, Austria, 2000

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## ADVISING

### Ph.D. Students

- |  |           |
|--|-----------|
| <p>(1) Evangelos Pantazis, Ph.D. student (Civil Engineering), <b>Advisor, Thesis Chair</b></p> <p><i>*Graduated May 2019</i></p> <p style="padding-left: 20px;">Dissertation Title: Behavioral From Finding</p> <p style="padding-left: 20px;">Current Position: IBI Consultants</p> <p style="padding-left: 20px;"><i>*Recipient of the Myronis Fellowship</i></p> <p style="padding-left: 20px;"><i>*Recipient of the inaugural "BUILDers in Residence" award, sponsored by Autodesk and IaaC - Institute for Advanced Architecture of Catalonia</i></p>                   | 2014-2019 |
| <p>(2) Shi-Hsin "Eve" Lin, Ph.D. in Architecture, <b>Advisor, Thesis Chair</b></p> <p><i>*Graduated May 2014</i></p> <p style="padding-left: 20px;">Dissertation Title: Evolutionary Energy Performance Feedback for Design</p> <p style="padding-left: 20px;">Current Position: Research &amp; Development Associate, Tensile Evolution, North America</p> <p style="padding-left: 40px;">Lecturer, University of Southern California, School of Architecture</p> <p style="padding-left: 20px;"><i>*Recipient of the Provosts Dissertation Continuation Fellowship</i></p> | 2011-2014 |

### Candidacy and Thesis Committees

- |  |              |
|--|--------------|
| <p>(1) Julius Sustarevas, Ph.D. student (Computer Science and Robotics), University College London</p> <p><b>External Advisor</b></p>  | 2017-Present |
| <p>(2) Mary Katherine Heinrich, Ph.D. Student (Architecture), Royal Danish Academy of Fine Arts, Schools of Architecture, Design, and Conservation: <i>"Self Organizing, -adaptive and hybrid robotic control in architectural technology"</i></p> <p><b>Thesis Committee Member/ Assessor</b></p> | 2019         |
| <p>(3) Alicia Nahmad Vazquez, Ph.D. Student, Welsh School of Architecture, Cardiff University, United Kingdom: <i>"Robotic Assisted Design: A study of key human factors influencing team fluency in human-robot collaborative design processes"</i></p> <p><b>Thesis External Examiner</b></p>    | 2019         |
| <p>(4) Joao Pedro Carneiro, Ph.D. student (Civil Engineering),</p> <p><b>Engineering Degree Committee</b></p> <p><b>Thesis committee member</b></p>  | 2015-2019    |
| <p>(5) Saba Khashe, Ph.D. student (Civil Engineering), <b>Thesis committee member</b></p>  | 2014-2017    |
| <p>(6) Arsalan Heydarian, Ph.D. student (Civil Engineering), <b>Thesis committee member</b></p>  | 2014-2017    |
| <p>(7) Yara Masri, Ph.D., in Architecture, <b>Thesis committee member</b></p>  | 2010-2012    |
| <p>(8) Aslihan Solmaz, Ph.D., Architecture, Dokuz Eylül University, Izmir, Turkey</p> <p style="padding-left: 20px;">USC Research Associate – <b>Scholar sponsor and advisor while at USC</b></p>  | 2011         |

### Master Research Students

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|--|-----------|
| <p>(1) Rodrigo Shirdia, USC, MArch PP, Directed Design Research, <b>Thesis Advisor</b></p> | 2013-2014 |
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(2) Michael Makris, USC, Masters of Building Science, <b>Thesis Co-Advisor</b>	2012-2013
(3) Aireen Batungbakal, USC, Masters of Building Science, <b>Thesis Co-Advisor</b>	2012-2013
(4) Pouya Goshayeshi, USC, MArch PP, Directed Design Research, <b>Thesis Advisor</b>	2012-2013
(5) Oleksandra Kazymirska, USC, MArch PP, Directed Design Research, <b>Thesis Co-Advisor</b>	2012-2013
(7) Paul Sheene, USC, MArch PP, Directed Design Research, <b>Thesis Co-Advisor</b>	2012
(8) Wenqing Li, USC, MArch PP, Directed Design Research, <b>Thesis Co-Advisor</b>	2011
(9) Anirudh Dawan, USC, MArch PP, Directed Design Research, <b>Thesis Co-Advisor</b>	2011
(10) Mohammed El Sheikh, USC, Masters of Building Science, <b>Thesis Co-Advisor</b>	2010-2011
(11) Ben Kikkawa, SCI-Arc, M Arch II, <b>Thesis Advisor</b>	2009
(12) Ron Elad, SCI-Arc, M Arch I, <b>Thesis Advisor</b>	2007

#### Undergraduate Research Students

(1) Alan Wang, UG student (Arch.) w/ a minor in Comp. Sci., <b>Advisor, NSF UG REU researcher</b>	2015-2017
(2) Jose Alejandro Medina, UG student (Arch.), <b>Advisor, URAP</b>	2015
(3) Nick Morof, UG student (Arch.), <b>Advisor, URAP</b>	2015
(4) Arjun Mahesh, UG student (Arch.), <b>Advisor, NSF UG REU researcher</b>	2014
(5) Leen Katrib, UG student (Arch.), <b>Advisor, URAP</b>	2014
(6) Brian Herrera, UG student (Comp. Sci.), <b>Advisor while at USC Cal State University Dominguez Hills, NSF Outreach partner</b>	2015
(7) Kevin Daley, UG student (Comp. Sci.), <b>Advisor while at USC Cal State University Dominguez Hills, NSF Outreach partner</b>	2015
(8) Samori Price, UG student (Comp. Sci.), <b>Advisor while at USC Cal State University Dominguez Hills, NSF Outreach partner</b>	2014
(9) Boian Kolev, UG student (Comp. Sci.) <b>Advisor while at USC Cal State University Dominguez Hills, NSF Outreach partner</b>	2014
(10) Seri Hieatt, UG student (Arch.), <b>Advisor, URAP</b>	2012
(11) Nick Muraio, UG student (Arch.), <b>Advisor, URAP</b>	2012

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## SERVICE

### External Service

#### Editorships

(1) Editorial Board Member, for Data Centric Engineering	2019-2021
(2) Guest Co-Editor, Special Issue on Artificial Intelligence and Robotics in Architecture, Autonomy, Agency and Indeterminacy, <i>The International Journal of Architectural Computing (IJAC)</i>	2018-2019
(3) Guest Co-Editor, Special Issue on "Means, Methods, machines, and Making in architecture," <i>Architectural Sciences Review (ASR)</i>	2018-2019
(4) Associate Editor, <i>Frontiers in Digital Humanities, Digital Architecture</i>	2014-2018
(5) Guest Co-Editor, Special Issue on ACADIA 2018, <i>The International Journal of Architectural Computing (IJAC)</i>	2018
(6) Guest Editor, Special Issue on ACADIA 2014, <i>The International Journal of Architectural Computing (IJAC)</i>	2014-2015
(7) Guest Co-Editor, Special Issue on Design Agency, <i>The International Journal of Architectural Computing (IJAC)</i>	2014-2015

- (8) Guest Editor, *Simulation: Transactions of The Society for Modeling and Simulation International*: Special Issue on Simulation for Architecture and Urban Design

2014-2015

#### Technical Reviewer for Peer-Reviewed Journals/ Fellowships/ Grants and Books

- (1) Reviewer, *Data Centric Engineering Journal* 2020-2021
- (2) Reviewer, *Design Issues*, A Journal of History, Theory, and Criticism 2020-2021
- (3) International Reviewer, Research Grant Application on *Timber-based DfMA Facade Components for Factory in a Box (FIAB) based DM technologies*, MITACS program Canada 2020
- (4) Reviewer, *International Journal of Architecture and Computing (IJAC)*
- (5) Reviewer, *Architectural Sciences Review Journal (ASR)*
- (6) Reviewer, *Journal of Advanced Engineering Informatics*
- (7) International Evaluation Committee, Israeli Ministry of Science, Technology and Space
- (8) Reviewer, *International Journal of Building Simulation*
- (9) Reviewer, *Journal of Automation and Construction*
- (10) Reviewer, Swiss National Science Foundation
- (11) International Evaluation Committee, for "EPFL Fellows co-funded by Marie Curie Postdoctoral Fellowships"
- (12) Reviewer, *Simulation*, Transaction for the Society of Modeling and Simulation International
- (13) Reviewer, *Journal of Energy and Buildings*
- (14) Reviewer, *Footprint: Delft Architectural Theory Journal*
- (15) Reviewer, Wiley Book Publishers
- (16) Reviewer, Book Chapter (American Society of Civil Engineers)
- (17) Reviewer, *Journal of Architecture and Education*
- (18) Reviewer, *Journal of Design Studies*
- (19) Reviewer, *Journal of Computer Aided Design*
- (20) Reviewer, *ASCE Journal of Computing in Civil Engineering*
- (21) Reviewer, *Journal of Building and Environment*
- (22) Reviewer, *Journal of Advanced Engineering Informatics*
- (23) Reviewer, *ASCE Journal of Professional Issues in Engineering Education and Practice*

#### Technical Reviewer for Peer-Reviewed Conferences

- (1) Reviewer, CAAD Futures, 2017, 2019, 2021
- (2) Reviewer, IEEE Congress on Evolutionary Computation, Special Session in Architectural Design (CEC 2017)
- (3) Reviewer, Association of Computer Aided Design In Architecture (ACADIA) 2010 –Present
- (4) Reviewer, Symposium on Simulation for Architecture and Urban Design (SimAUD) 2011 –Present
- (5) Reviewer, Advanced Architectural Geometry (AAG) 2012–Present
- (6) Reviewer, Education and Research in Computer Aided Architectural Design in Europe (eCAADe) 2012, 15, 16
- (7) Reviewer, FABRICATE Conference, 2016, 2020
- (8) Reviewer, Tex-Fab Conference, 2016, 2018, 2020
- (9) Reviewer, Association for Computer-Aided Architectural Design Research in Asia (CAADRIA), 2011 –Present
- (10) Reviewer, Passive and Low Energy Architecture (PLEA), 2015-2016
- (11) Reviewer, Design Modeling Symposium (DMS), 2015-2019
- (12) Reviewer, Digital Architecture Design Association (DADA), 2015
- (13) Reviewer, International Association of Automation and Robotics in Construction (IAARC), 2012 –2014
- (14) Reviewer, International Conference on Computing and Civil Building Engineering (ICCCBE)(ASCE)(CIB) 2014
- (15) Reviewer, European Group Intelligent Computing in Engineering (EG-ICE) 2018-2020

#### Professional and Academic Society Memberships, Committees and Duties

- (1) CAAD Futures 2021, Conference Chair



- (2) Symposium on Simulation in Architecture and Urban Design (SimAUD),
  - a. **Member** 2009-Present
  - b. **Conference Chair**, 2021
  - c. **Conference Chair**, 2014,
  - d. **Board of Directors** 2018-2020 (Acting Chair)
- (3) Association for Computer Aided Design in Architecture (ACADIA)
  - a. **Member** 2009-Present
  - b. **Conference Chair**, ACADIA 2014 | Design Agency
  - c. **Board of Directors** 2012-2017
- (4) International Association of Automation and Robotics in Construction (IAARC) **Board of Directors** 2011- 2014
- (5) American Management Association (AMA), **Member** 2007-2009
- (6) American Society of Civil Engineers (ASCE), **Member** 2010-2015, 2017-2020
  - a. ASCE Technical Council on Computing and Information Technology Educational Committee, **Member** 2011
- (7) Education and Research in Computer Aided Architectural Design in (eCAADe), **Member** 2013-Present
- (8) The Association for Computer-Aided Architectural Design Research in Asia (CAADRIA), **Member** 2012-2015
- (9) IEEE Member 2018-2020
- (10) ACM Member, 2021
- (11) Ecole Nationale des Ponts et Chaussees (ENPC), France, Advanced Master in Computational Design and Making, **Scientific Advisory Committee** 2015-2017

## Internal Service

### University of Southern California

- (1) University Committee on Information Services, 2012-2015
- (2) USC Graduate School Advisory Council, 2013-2015

### USC Viterbi School of Engineering, Sonny Astani Department of Civil and Environmental Engineering

- (1) USC Viterbi School of Engineering, Ginsburg Hall Committee
- (2) USC Viterbi School of Engineering, Development of Minor in Engineering Innovation for Global Challenges
- (3) USC Viterbi School of Engineering, Indian International study programming and communications 2021
- (4) Undergraduate BSCE Program, ABET accreditation update and Curriculum committee, 2018-2021
- (5) Graduate (NEW) MSCE Advanced Design & Construction Technology Program design and Curriculum committee, 2018-2020
- (6) Visiting Scholars Committees 2018
- (7) Visiting Scholars Committees 2019
- (8) Academic Faculty Merit Review Committee 2020

### USC School of Architecture

- (9) USC School of Architecture Curriculum committee, 2016-2017
- (10) USC School of Architecture Lectures committee, 2014-2016
- (11) USC School of Architecture Freshman Admissions committee, 2010-2012, 2016
- (12) USC School of Architecture Design Faculty Search committee, 2014-2015
- (13) USC School of Architecture Urban Ecology Landscape Faculty Search committee, 2015
- (14) USC School of Architecture M. Arch Admissions committee, 2012-2015
- (15) USC School of Architecture Digital Task Force, 2015
- (16) USC School of Architecture Curriculum committee, 2012-2013
- (17) USC School of Architecture Facilities committee, 2010-2012
- (18) USC School of Architecture PhD Admissions committee, 2010-2012
- (19) USC School of Architecture Executive committee, 2010
- (20) USC School of Architecture Curriculum committee (Secretary), 2009-2010
- (21) USC School of Architecture Digital Curriculum Task Force, 2009-2011