

# ZACKERY BELANGER

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Arcgeometer LC  
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## personal

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nationality: American  
date of birth: September 1976

## précis

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Founder and Director of Arcgeometer LC  
Researcher, designer, artist, and consultant specializing in the acoustics of geometry and form  
Educated in physics, gravitation, architecture, and acoustics  
Public speaker and educator of architects and designers

## experience

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- 2015 - present      Consultant and Researcher, Arcgeometer LC  
                         development of acoustics surfaces and enclosures  
                         research on the advancement and future of acoustic architecture  
                         consultation, measurement and documentation of acoustic spaces  
                         education and public speaking
- 2015                  Adjunct Professor, Berklee College of Music, Boston, MA  
                         lectured on room acoustics for musicians and music technology students
- 2013-2014          Researcher in Residence, Experimental Media and Performing Arts Center, Rensselaer Polytechnic Institute, Troy, NY  
                         developed *The Next Acoustic Architecture*  
                         acoustic evaluation, documentation and refinement of EMPAC, post-occupancy  
                         artistic consultation and collaboration in acoustic materials, geometry, and fabrication
- 2013-2015          Member, Board of Directors, Troy Savings Bank Music Hall
- 2011-2012          Master of Science in Architectural Sciences, Rensselaer Polytechnic Institute, Troy, NY  
                         thesis: *Sound Energy Evolution in Two Dimensional Enclosures as Determined with a Finite Difference Time Domain Method*
- 2002-2010          Consultant, Research and Development Lead, Kirkegaard Associates, Chicago, IL  
                         consulted on geometries, proportions, materials, and systems for acoustic spaces large and small  
                         developed and fabricated acoustic models and mockups  
                         measured acoustic performance, background noise, vibration, and isolation  
                         wrote, implemented, and maintained acoustic software  
                         designed computational patterns, layouts, and geometries  
                         innovated testing methods and data analysis techniques  
                         developed new acoustic products  
                         analyzed contemporary and historical acoustic materials  
                         managed projects from inception to completion
- 1995-2001          Bachelor and Master of Science in Physics, Oakland University, Rochester, MI  
                         thesis: *Adaptive Mesh Refinement in the  $T^2$  Symmetric Spacetime*  
                         synchronization with extant adaptive evolution system at Lawrence Livermore National Laboratory

## ZACKERY BELANGER

### notable projects

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2021	<i>Long Range</i> continuous acoustic surface of glass, with C. Newell, W. McGee, University of Michigan Taubman School
2021	<i>Acoustic Ornament</i> print and digital essay released
2019	<i>Sonic Stacks</i> acoustic assessment of books, with Misha Volf, Detroit, MI
2018	Development, testing, and deployment of acoustic lighting, with LightArt, Seattle, WA
2016	Consultation on the renovation of the Park Theatre, Glens Falls, NY
2016	Acoustic consultation and installation on El Club, Detroit, MI
2015	Diagnosis and modification recommendations for existing acoustic panels, EMPAC at Rensselaer, Troy NY
2015	Consultation, design, and fabrication of custom, integrated acoustic treatment, Manchester Community Library, Manchester, VT
2015	Consultation, design, and fabrication of custom, integrated acoustic treatment, Celebration Barn, Manchester, VT
2015	Acoustic documentation and study of 2626 Bancroft Way, Berkeley, CA - <i>Acoustic Deconstruction</i>
2014	<i>Scale is Everything</i> , DLECTRICITY, Detroit, MI
2014	Design, fabrication, and installation of surface preserving armatures for aging acoustic panels, Troy Savings Bank Music Hall
2013	Acoustic assessment, Arkell Pavilion, Southern Vermont Arts Center, Manchester, VT
2013	Design, fabrication, and installation of sculptural acoustic ceiling for Tala Bistro, Latham, NY
2013	Acoustic consultation for adaptive reuse of an historic bank into a Ballroom at 60 State St, Albany, NY
2013	Sound isolation testing, consultation, and legal assistance for Legends on Pearl, Albany, NY
2013	Development of <i>The Next Acoustic Architecture</i> concept for a new approach to acoustic design
2013	Introduction of a treatment-free, minimal distortion concert hall form
2012	Acoustic horn design and fabrication for Thom Kubli's <i>Black Hole Horizon</i> installation
2012	<i>Manta Reactive Acoustic Surface</i> , with Eric Ameres, Seth Edwards, and Guillermo Bernal
2012	Acoustic horn design for Brent Green's <i>To Many Men Strange Fates Are Given</i> , premiered at Sundance Film Festival
2011	<i>Arête Space</i> design, with funding from the Graham Foundation for Advanced Studies in the Fine Arts, with Julie Flohr
2010	Waterberg Waves community radio station, from shipping container, Johannesburg, South Africa, with Max Graef and RadioActive
2008	EMPAC fabric and surface design, with Kirkegaard Associates
2008	EMPAC diffusive panels geometry and layout, with Kirkegaard Associates
2007	The Royal Festival Hall acoustic renovation, with Kirkegaard Associates
2007	International design competition, Mezaparks Latvian Open Air Stage, 3rd place, with Colin Franzen, Zane Karpova, and Linda Just

### appearances

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2021	Invited, Acoustical Society of America Fall Meeting, Seattle, WA
2021	Speaker, LightFair, <i>Temporal Precision and Spatial Blur</i> , New York, NY
2019	Invited, EMPAC Fall Series, <i>Shape, Spaces, and Sound</i> , Rensselaer, Troy, NY
2019	Presenter, Interior Design Show, <i>Designing Rooms for Acoustics</i> , Vancouver, BC
2018	Association for Computer Aided Design In Architecture, <i>Activating Curvature</i> , Mexico City, Mexico
2017	Invited, Design Core Detroit, <i>Acoustics for Present and Future Architects, Designers, and Artists</i> , UD Mercy
2017	Panelist, DetroitSound4, <i>Detroit Sound Design: Theory and Practice</i>
2017	Presenter, New Music Gathering, <i>Acoustic Spaces Large and Small</i> , Bowling Green State University,
2017	Invited, The New School at Parsons, School of Constructed Environments, <i>The Sound of Object, Space, and Form</i>
2017	Invited, Spring Lecture Series, Virginia Commonwealth University, School of the Arts, <i>The Sound of Object and Space</i>
2015	Performer, Trans-Pecos, Brooklyn, NY
2015	Invited, The Henry, <i>On the Acoustics of Books</i> , Seattle, WA
2015	Invited, The Lab, <i>Acoustic Concrete: What Brutalist Architecture Can Teach Us About Sound</i> , San Francisco, CA
2015	Performer, Non-Event @ Cafe Fixe, Boston, MA
2015	Invited critic, Rensselaer Polytechnic Institute School of Architecture, Troy, NY
2014	EMPAC lecture, <i>The Next Acoustic Architecture</i> , Rensselaer, Troy, NY
2014	Invited, Rensselaer Lunch and Learn, <i>Case Studies in Acoustic Architecture</i> , Troy, NY
2013	Invited, Union College, Schenectady, NY
2012	Roundtable discussion, <i>Energy, Environments, and Conflicts</i> , Smartgeometry 2012, Troy, NY
2012	Invited, Grimshaw Architects, New York City, NY
2011	Invited, EMPAC Retrospective Roundtable Discussion/Oral History, Troy, NY
2011	Invited, University of Illinois at Chicago School of Architecture Materials and Geometry Studio, Chicago, IL
2010	Invited, Chicago Computational Design Forum, Chicago, IL
2008	Invited, Meeting of the Acoustical Society of America, Miami, FL