SEAN AHLQUIST

Associate Professor of Architecture
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1 GENERAL INFORMATION

1.1 Education

(2010-present). *Doctor of Engineering (Dr. Ing.), expected 2023-24.* Stuttgart, Germany: University of Stuttgart, Faculty of Architecture, Institute for Computational Design.

(2009). *Masters in Architecture (M. Arch.).* London, UK: Architectural Association, Emergent Technologies and Design Programme.

(1994). *Bachelor of Arts with major in Architecture (B.A. Arch.).* St. Louis, MO: Washington University.

1.2 Academic Experience

(2021-present). *Director – Master of Science in Digital Material Technologies*. Ann Arbor, Michigan: University of Michigan, Taubman College of Architecture and Urban Planning.

(2019-present). *Associate Professor of Architecture, Cluster for Computational Media and Interactive Systems*. Ann Arbor, Michigan: University of Michigan, Taubman College of Architecture and Urban Planning.

(2012-2019). *Assistant Professor of Architecture, Cluster for Computational Media and Interactive Systems.* Ann Arbor, Michigan: University of Michigan, Taubman College of Architecture and Urban Planning.

(2009-2012). *Adjunct Professor and Doctoral Candidate*. Stuttgart, Germany: University of Stuttgart, Faculty of Architecture, Institute for Computational Design.

(2006-2007). *Senior Lecturer*. San Francisco, California: California College of the Arts.

(2005-2006). *Lecturer*. Berkeley, California: University of California – Berkeley, College of Environmental Design.

(2004-2005). *Thesis Advisor and Instructor*. San Francisco, California: Academy of Art University.

1.3 Professional Experience

(2009-2012). *Research Associate*. Stuttgart, Germany: University of Stuttgart, Institute for Computational Design.

(2008-2011). *Founder, Design and Advanced Geometry Consultant*. Stuttgart, Germany and London, UK: MORSE.

(1997-2007). *Founder, Architectural Designer and Advanced Geometry Consulta*nt. San Francisco, California: Proces2.

(1996-1997). *Architectural Technician*. San Francisco, CA: Hellmuth, Obata + Kassabaum.

(1995-1996). *Junior Designer*. St. Louis, Missouri: Hellmuth, Obata + Kassabaum.

(1994-1995). *Project Designer*. St. Louis, Missouri: Schwetye Architects, Inc.

2 SCHOLARLY WORK

2.1 Honors/Awards

Ahlquist, S. (2020) ACADIA Innovative Research Award of Excellence.

Ahlquist, S. (2018) Social Sensory Architectures: Sensorially-responsive environments designed to address challenges facing children with autism spectrum disorder. *ARCHITECT Magazine R&D Awards – Honorable Mention.*

Ahlquist, S. (2016) Social Sensory Architectures. *SXSW Eco – Place by Design, Winner in Speculative and Prototyping Category*. Austin, Texas.

2.2 Books and Book Chapters

Ahlquist, S. (2022). From Evo-Devo Strategies to a Way Forward with Ecosocial Evo-Devo for Generative Design Processes: toward Extending the Polymorphism of Metabolic Architecture and the Integration of Diversities, in M. Kanaani (ed.) *The Routledge Companion to Ecological Design Thinking: Healthful Ecotopian Visions for Architecture & Urbanism.* (awaiting print publication) New York: Routledge.

Ahlquist, S. (2022) Socio-material Capacities for Ecotopian Designs: Placing architecture at the nexus of materiality, neurodiversity and social behavior--Shifting design agency to activate neurodiversity, in M. Kanaani (ed.) *The Routledge Companion to Ecological Design Thinking: Healthful Ecotopian Visions for Architecture & Urbanism.* (awaiting print publication) New York: Routledge.

Ahlquist, S. (2019). Reciprocal Relationships of Materiality and Human Engagement: Expanding the Role of Material Systems towards Sensorial Socio-Spatial Agency, in M. Kanaani (ed.), *The Routledge Companion to Paradigms of Performativity in Design and Architecture: Using Time to Craft an Enduring, Resilient and Relevant Architecture* (443-463) New York: Routledge.

Ahlquist, S. (2018). Sensorial Playscape. In P. Yuan, N. Leach & A. Menges (eds.), *Digital Fabrication* (197-210) Tongi: Tongji University Press.

Ahlquist, S. and Menges, A. (2016) Materiality & Computational Design: Emerging Material Systems & the Role of Design Computation and Digital Fabrication. In M. Kanaani & D. Kopec (eds.), *The Routledge Companion for Architecture Design and Practice: Established and Emerging Trends*, (149-168) New York: Routledge.

Ahlquist, S. (2016). Social Sensorial Responsivity in Material Architectures. In R. V. Gomez & A. Brakke (eds.) *Digital Reveal – Arquitectura de la era Post-Digital, Bogota, August 2016*, pp. 66-75.

Menges, A. & Ahlquist, S. (eds.) (2011). *Computational Design Thinking*. London: John Wiley and Sons.

2.3 Peer Reviewed Journal Papers

Ahlquist, S. AIA Huron Valley Awards Journal

World Architecture (2020)

Ahlquist, S. (2020). Negotiating human engagement and the fixity of computational design: Toward a performative design space for the differently-abled bodymind. International Journal of Architectural Computing, (awaiting print publication), 1–20. doi

Ahlquist, S., Ketcheson, L., & Colombi, C. (2017). Multisensory Architecture: The Dynamic Interplay of Environment, Movement and Social Function. *Architectural Design Special Issue: Design for Health*, 87(2), 90-99.

Ahlquist, S. (2016). Sensory material architectures: Concepts and methodologies for spatial tectonics and tactile responsivity in knitted textile hybrid structures. *International Journal of Architectural Computing*, 14(1), 63-82.

Ahlquist, S. (2016). Textile Environments and Tactile Interfaces: Responsive Multi-Sensory Architectures for Children with Autism Spectrum Disorder, *AIA Academy of Architecture for Health Journal*, 18, 4-15.

Ahlquist, S., Erb, D. & Menges, A. (2015). Evolutionary structural and spatial adaptation of topologically differentiated tensile systems in architectural design, *Artificial Intelligence for Engineering Design, Analysis and Manufacturing Journal*, 29 (04), 393-415.

Ahlquist, S. (2015) Membrane Morphologies - Heterogeneous Forces and Articulated Material Form, *Architectural Design Special Issue: Fusing the Physical and the Computational*, 85(5), 80-85.

Ahlquist, S., Kampowski, T., Oliyan, O., Menges, A. & Speck, T. (2014). Development of a digital framework for the computation of complex material and morphological behavior of biological and technological systems, *Computer-Aided Design Special Issue: Material Ecology*, 60, 84–104.

Ahlquist, S., & Menges, A. (2012). Physical Drivers: Synthesis of Evolutionary Developments and Force-Driven Design, *Architectural Design Special Issue: Material Computation*, 82 (2), 60-67.

Ahlquist, S., & Fleischmann, M. (2009). Computational Spring Systems: Open Design Processes for Complex Structural Systems, *Architectural Design Special Issue: Closing the Gap*, 79 (2), 130-133.

Ahlquist, S., & Fleischmann, M. (2008). Elemental Methods for Integrated Architectures, *International Journal for Architectural Computing*, 6 (4), 453-475.

2.4 Professional Journal Articles

Ahlquist, S. & Lienhard, J. (2013) Textile Hybrid M1. *Tensinews,* 24(April), 6-9.

2.5 Peer-reviewed Conference Papers

Yan Ng, T., Ahlquist, S., Filipov, E. & Weisman, T. (2020). Active-Casting. *In Proceedings of the 40th Annual Conference of the Association of Computer Aided Design in Architecture (ACADIA), Distributed Proximities*, Online, October 2020, pp. 546-555.

Ravandi, M., Ahlquist, S. E., & Banu, M. (2020). Numerical modelling of mechanical behaviour of weft-knitted carbon fiber composites. In *EUCASS 2019, Madrid, July 2020,* pp. 1–8.

Ahlquist, S. E. (2019). Expanding the Systematic Agency of a Material System. In *Proceedings of the 39th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA), Austin, October 2019,* pp. 630–641.

Park, G., Adams, L., Ahlquist, S. & Nanda, U. (2018). Sensory Wellbeing for Adolescents with Developmental Disorders: Creating (and testing) a Sensory Wellbeing Hub. In *ANFA 2018: Shared Behavioral Outcomes [Conference for the Academy of Neuroscience for Architecture], La Jolla, September 2018,* (awaiting print publication).

Ahlquist, S., McGee, W. & Sharmin, S. (2017). Pneumaknit: Actuated Architectures Through Wale- and Course-Wise Tubular Knit-Constrained Pneumatic Systems. In T. Nagakura & S. Tibbits (eds.), *ACADIA 17: Disciplines & Disruptions [Proceedings of the 37th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)], Boston, November 2017*, pp. 39-51.

Ahlquist, S. (2017). Sensorial Playscape: Advanced structural, material and responsive capacities of textile hybrid architectures as therapeutic environments for social play. In A. Menges, B. Sheil, R. Glynn, & M. Skavara (eds.), *Fabricate: Rethinking Design and Construction, Stuttgart, April 2017*, pp. 234- 241.

Zhuang, L.Y., Luntz, J. Brei, D., Ahlquist, S. & Alexander, P. (2017). Behavior Characterization of Machine-Knit SMA. In A. Güemes, A. Benjeddou, & J. Leng (eds.), *VIII ECCOMAS Thematic Conference on Smart Structures and Materials SMART 2017 Conference Proceedings, Madrid, June 2017*, pp. 943-956.

Sharmin, S. & Ahlquist, S. (2016). Knit Architecture: Exploration of Hybrid Textile Composites Through the Activation of Integrated Material Behavior. In K. Velikov, S. Ahlquist, & M. del Campo (eds.), *ACADIA 16: Posthuman Frontiers [Proceedings of the 36th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)], Ann Arbor, October 2016*, pp. 254-259.

Wang, A. & Ahlquist, S. (2016). Pneumatic Textile System. In K. Velikov, S. Ahlquist & M. del Campo (eds.), *ACADIA 16: Posthuman Frontiers [Proceedings of the 36th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)], Ann Arbor, October 2016,* pp. 290-297.

Ahlquist, S. & Lienhard, J. (2016). Extending Geometric and Structural Capacities for Textile Hybrid Structures with CNC Knitting. In K. Kawaguchi, M. Ohsaki & T. Takeuchi (eds.), *IASS 2016 Tokyo Symposium: Spatial Structures in the 21st Century, Tokyo, September 2016.* pp. 1-10.

Ahlquist, S. (2016). Integrating Differentiated Knit Logics and Pre-Stress in Textile Hybrid Structures. In M. Thomsen, M. Tamke, C. Gengnagel, B. Faircloth & F. Scheurer (eds.*), Modelling Behaviour: Proceedings of the Design Modelling Symposium, Copenhagen, September 2015*, pp. 1-14.

Ahlquist, S. (2015). Social Sensory Architectures: Articulating Textile Hybrid Structures for Multi-sensory Responsiveness and Collaborative Play. In L. Combs & C. Perry (eds.), *ACADIA 15: Computational Ecologies [Proceedings of the 35th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)], Cincinnati, October 2015*, pp. 262-273.

Ahlquist, S., Newell, C., Thun, G. & Velikov, K. (2015). Towards a Pedagogy of Material Systems Research. In K. Bieg (ed.*), TxA Interactive Conference Proceedings, Fort Worth, November 2013*, pp. 22-33.

Ahlquist, S. (2014). Post-forming Composite Morphologies: Materialization and design methods for inducing form through textile material behavior. In D. Gerber, A. Huang & J. Sanchez (eds.), *ACADIA 14: Design Agency [Proceedings of the 34th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)], Los Angeles, October, 2014*, pp. 267-276.

Ahlquist, S. & Menges, A. (2013). Frameworks for Computational Design of Textile Micro-Architectures and Material Behavior in Forming Complex Force-Active Structures. In P. Beasley, O. Khan & M. Stacey (eds.), *ACADIA 13: Adaptive Architecture [Proceedings of the 33rd Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)], Cambridge, October 2013*, pp. 281-292.

Ahlquist, S., Lienhard, J., Knippers, J. & Menges, A. (2013). Physical and Numerical Prototyping for Integrated Bending and Form-Active Textile Hybrid Structures. In C. Gengnagel, A. Kilian, J. Nembrini & F. Scheurer (eds.), *Rethinking Prototyping: Proceeding of the Design Modelling Symposium, Berlin, October 2013*, pp. 1-14.

Ahlquist, S., Lienhard, J., Knippers, J. & Menges, A. (2013). Exploring Materials Reciprocities for Textile-Hybrid Systems as Spatial Structures. In M. Stacey (ed.), *Prototyping Architecture: The Conference Papers, London, March 2013*, pp. 187-210.

Lienhard, J., Ahlquist, S., Menges, A. & Knippers, J. (2013). Extending the Functional and Formal vocabulary of tensile membrane structures through the interaction with bending-active elements. In F. Dansik, M. Sahin, M. Devecioglu, E. Pusat, A. Kaymak & E. Corne *TensiNet symposium [RE]THINKING lightweight structures, Istanbul, May 2013.*

Ahlquist, S. & Menges, A. (2011). Articulated Behavior: Computational Methods for the Generation and Materialization of Complex Force-Active Textile Morphologies. In L. Hallnäs (ed.), *Proceedings of AMBIENCE 2011 Conference, Boras, November 2011.*

Ahlquist, S. & Menges, A. (2011). Behavior-based Computational Design Methodologies: Integrative Processes for Force Defined Material Structures. In B. Kolarevic (ed.), *ACADIA 11: Integration through Computation [Proceedings of the 31st Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)], Banff (Alberta), October 2011*, pp. 82-89.

Ahlquist, S. & Menges, A. (2011). Integration of Behaviour-based Computational and Physical Models Design Computation and Materialisation of Morphologically Complex Tension-Active Systems. In C. Gengnagel, A. Kilian, N. Palz & F. Scheurer (eds.) *Computational Design Modeling: Proceedings of Design Modeling Symposium 2011, Berlin, November 2011,* pp. 71-78.

Ahlquist, S. & Menges, A. (2011). Methodological Approach for the Integration of Material Information and Performance in the Design Computation for Tension-Active Architectural Systems. In T. Zupancic & P. Gabrijelcic (eds.), *eCAADe 29th Procedings: Respecting Fragile Places, Ljubljana, September 2011,* pp. 800-807.

Ahlquist, S. & Menges, A. (2010). Realizing Formal and Functional Complexity for Structurally Dynamic Systems in Rapid Computational Means. In C. Ceccato, L. Hesselgren, M. Pauly, H. Pottmann, & J. Wallner (eds.), *Proceedings of Advances in Architectural Geometry Conference 2010, Vienna, September 2010,* pp. 205-220.

Ahlquist, S. & Fleischmann, M. (2009). Cylindrical Mesh Morphologies: Study on Computational Meshes Based on Parameters of Force, Material, and Space for the Design of Tension-Active Structures, In G. Çağdaş B. Çolakoğlu (eds.) *Computation: The New Realm of Architectural Design, Proceedings of the 27th Conference on Education and Research in Computer Aided Architectural Design in Europe (eCAADe), Istanbul, September 2009,* pp. 39-46. (ISBN: 978-0-9541183-8-9)

Fleischmann, M., Ahlquist, S. & Menges, A. (2009). Articulating Boundaries of Computational Meshes. In C. Gengnagel (eds.) *Proceedings of Design Modeling Symposium, Berlin, October 2009,* pp. 197-203. (ISBN: 978-3-89462-177-3)

Ahlquist, S. & Fleischmann, M. (2008). Material & Space: Synthesis Strategies based on Evolutionary Developmental Biology. In A. Kudless, N. Oxman & M. Swackhamer (eds.) *Silicon + Skin: Biological Processes and Computation, [Proceedings of the 28th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)], Minneapolis, October 2008,* pp. 66-71 (ISBN: 9780978946340)

2.6 Invited Lectures

Millwork Commons, Millwork Connect Art Talk (2022, May 07)

UC-Berkeley (2022, XX)

CMU Ecology Course (2021, November 22)

LCE ACTIVATE (2021, October 25)

UT Arc180 Course (2021, October 13)

Venice Biennale – How Will We Play (2021, August 27)

InclusiveFutures (2021, June 02)

UWE-Bristol – Inclusive Design Network (2021, May 21)

Digital Futures, Soft Architectures (2021, April 17)

ArcInTex (2022, April 8)

U-M DESCI 502 (2021, March 17)

IntCDC Stuttgart (2022, February 14)

Kent State (2022, February 07)

Autism Alliance of Michigan (2021, March 03)

Senshome Conference (Italy) (2020, December 09)

CMU Ecology Course (2020, November 13)

Research Award ACADIA 2020 (2020, October 28)

Knit to Shell ACADIA 2020 (2020, October 26)

AIA Huron Valley (2020, October 09)

Syracuse University Lecture Series (2020, September 29)

Neurodiversity Symposium (Jefferson) (2020, September 13)

Unviersity of Oregon (2020, August 05)

Tuelo Talk (2020, June 19)

Ahlquist, S. (2020, June 02). Digital Futures

Ahlquist, S. (2020, February 14). Common Ground: Re-imagining architecture as an instrument for inclusion. Presented at *TedXUofM.* Ann Arbor: Power Center for the Arts.

Ahlquist, S. (2019, December 2). Tailoring Multi-scale Material Behavior: For sensori-motor movements and social interactions. Presented at *Material Research Society (MRS) Fall Symposium, Session SB10: Electronic Textiles*. Boston: Hynes Convention Center.

Ahlquist, S. (2019, November 5) Structural Knits and Sensorial Environments. Presented at the *University of Michigan Chi Epsilon Speaker Series.* Ann Arbor: University of Michigan.

Ahlquist, S. (2019, October 26) Expanding the Systematic Agency of a Material System. Presented at *ACADIA 19: Ubiquity and Autonomy*. Austin: University of Texas.

Ahlquist, S. (2019, July 15) Structural Knits and Sensorial Environments. Presented at *Haworth, Inc*. Holland, MI: Haworth Headquarters.

Ahlquist, S. (2018, April 19). SensoryPlayscapes. Presented at *Intersection of the Arts and Autism Symposium – Big Umbrella Festival*. New York: Lincoln Center.

Ahlquist, S. (2018, April 3). Tactile Interface for Socio-spatial Architectures. Presented at *Spring Symposium for the Material Research Society (MRS)*. Phoenix: Material Research Society.

Ahlquist, S. (2018, February 19). Sensorial Architectures. Presented at *Carnegie Mellon University, School of Architecture Public Lecture Series*. Pittsburgh: Carnegie Mellon University.

Ahlquist, S. (2017, February 14). Sensorial Architectures. Presented at *College Art Association (CAA) Conference – Textile Technologies Session*. New York: College Art Association.

Ahlquist, S. (2016, September 2). Sensorial Architectures. Presented at *Digital Reveal Symposium - Architecture in the Post-Digital Age*. Bogota (Colombia): Universidad Piloto de Colombia.

Ahlquist, S. (2016, July 27). Membrane Technologies: Lightweight Structures, Experiential Environments and Composites Research. Presented at *Mercedes Benz – Advanced Design Group*. Stuttgart: Mercedes Benz.

Ahlquist, S. (2016, July 14). Sensorial Architectures: Exploration of Textile Structures and Environments for Children with Autism. Presented at *Architectural Association Visiting School (AAVS) Dubai*. Dubai: AAVS.

Ahlquist. S. (2016, April 8). Sensorial Architectures: Exploration of textile structures and environments for Children with Autism. Presented at *HOPES22: Response Conference*. Eugene: University of Oregon.

Ahlquist, S. (2016, March 28). Sensorial Architectures – Exploration of Textile Structures, Responsivity and Tactile Environments. Presentation at *Southern Illinois University – Carbondale, Public Lecture Series*. Carbondale: Southern Illinois University.

Ahlquist, S. (2016, February 28). Sensorial Architectures – Exploration of Textile Structures, Responsivity and Tactile Environments. Presentation at *ArcInTEX (ETN) – Activating the Surface Symposium*. Berlin: UdK.

Ahlquist, S. (2015, November 13). Transdisciplinary Design for Technology-embedded Tactile Environments. Presented at *American Institutes for Architecture – San Francisco (AIASF) Next Conference*. San Francisco: AIASF.

Ahlquist, S. (2015, November 12). Sensory Architectures: Exploration of Textile Structures, Responsivity and Tactile Environments. Presented at *Digital Crafting Lab Lecture Series*. San Francisco: California College of the Arts (CCA).

Ahlquist, S. (2015, August 14). Material Computation – Intelligent Morphology and Responsivity in Textile Architectures. Presented at *Architectural Association Visiting School (AAVS) – New York City*. New York: AAVS.

Ahlquist, S. (2015, April 9). Differentiating Fiber Structures in Knitted Textiles for the Generation of Deformable Material Systems and Architectural Skins. Presented at *Material Research Society Symposium, Session NN – Adaptive Architecture and Programmable Matter, Next Generation Building Skins and Systems from Nano to Macro*. San Francisco: Material Research Society (MRS).

Ahlquist, S. (2014, October 13). Social Sensory Environment: Collaborative Research in Textile-based Technologies for Children with Autism Spectrum Disorder. Presented at *MTalks*. Ann Arbor: University of Michigan.

Ahlquist, S. (2014, August). Computational Design Thinking: Research in Material Computation. Presented at *California College of the Arts*. San Francisco: CCA.

Ahlquist, S. (2014, February). Forming Textile Morphologies: Anthology of research in expanding topological complexity and material behavior. Presented at *TexFab5 Symposium*. Austin: University of Texas – Austin.

Ahlquist, S. (2014, March). Material Computation: Architectural Research in Complex Fibrous Structures. Presented at *Center for the Study of Complex Systems*. Ann Arbor: University of Michigan.

Ahlquist, S. (2013, February). Exploration and fidelity in material computation: Evolutionary means for the articulation of textile morphologies. Presented at *Encoding Architecture Conference*. Pittsburgh: Carnegie Mellon University.

Ahlquist, S. (2012, September). Material Equilibria. Presented at *University of Arkansas – School of Architecture*, Open Lecture. Fayetteville: University of Arkansas.

Ahlquist, S. (2012, May). Physical Drivers. Presented at *Launch for Architectural Design, Special Issue: Material Computation*. Frankfurt: German Architecture Museum.

Ahlquist, S. (2011, June). Form: Systems of Spatial and Material Behavior. Presented at *Staedelschule Architecture Lecture Series*. Frankfurt: Staedelschule.

Ahlquist, S. (2011, April). Computational Design: The generation and articulation of material behavior. Presented at *Woods Bagot Architecture Office*. San Francisco: Woods Bagot.

Ahlquist, S. (2011, February). Computing Material Operations. Presented at *UN Studio Architecture Office*. Rotterdam: UNStudio.

Ahlquist, S. (2010, December). Computation in the Design of Material Behaviors: Research in the specification of computational methods for the generation and articulation of tension-active systems. Presented at *Digital Crafting Symposium 1: Computation and Craft*. Copenhagen: CITA

Ahlquist, S. (2010, September). Material Operations: Computing Behavior. Presented at *University of Technology-Sydney Public Lecture Series*. Sydney: University of Technology – Sydney.

Ahlquist, S. (2010, March). Membrane Systems. Presented at *SmartGeometry – Shop Talk Lectures*. Barcelona: IAAC.

Ahlquist, S. (2009, February). Computational Cable Nets. Presented at SmartGeometry. San Francisco: SmartGeometry.

2.7 Exhibited Work

Orchid at Millwork Commons (2022, April – August)

Common Senses Festival (2022, April)

Orchid at Big Umbrella Festival (2021, September)

Venice Architecture Biennale (2021, May – October)

Ahlquist, S. (2017, August – November). Playscape Installation. In Exhibit Columbus. Columbus, IN: The Commons Building. Interactive exterior environment.

Ahlquist, S. (2017, September – 2018 January). 3D SensoryPLAYSCAPE [v2.1]. In *Exhibition of Faculty Work*. Ann Arbor: TCAUP New Wing Gallery. Interactive environment.

Ahlquist, S. (2017, April – 2018 January). Touch > Push > Sensate Play. In R. Gose (curator), *Exhibition for children of the THINKERY science and technology museum*. Austin: THINKERY. Solo exhibition of interactive environment.

Ahlquist, S., McGee, W. & Sodano, H. (2017, March – 2017, April). Morphable Architectures. In *Projects from the Research through Making Grant 2016-17*. Ann Arbor: Liberty Research Annex Gallery. Mixed media.

Ahlquist, S. (2017, March). Social Sensory Architectures. In J. Yost (curator), *Exhibition of technology at SXSWedu and SXSWinteractive*. Austin: SXSW. Solo exhibition of interactive environment.

Ahlquist, S. & Payne, A. (2016, November). Computational Design Pavilion. In *Exhibition of generative design and advanced manufacturing*. Las Vegas: Venetian Hotel – Autodesk University. Textile installation.

Ahlquist, S. (2016, October). Social Sensory Architectures – 3D SensoryPlayscape. In G. Thun (curator), *ACADIA 2016 Exhibition*. Ann Arbor: Liberty Research Annex Gallery. Interactive environment.

Ahlquist, S. & Popadich, O. (2016, October). Social Sensory Architecture – 2D SensorySurface. In M. Maynard (curator), *University of Michigan, Office of Technology Transfer – Celebrate Invention Event*. Ann Arbor: Michigan League. Interactive media.

Ahlquist, S. (2016, September). Social Sensory Architecture – 3D SensoryPlayscape. In M. Anderson (curator), *Detroit Design Festival*. Detroit: Detroit Center for Design and Technology Gallery. Solo exhibition of interactive environment.

Ahlquist, S. (2016, March) Social Innovation: Textile Technology for Children with Autism. In *University of Michigan booth at SXSWinteractive Technology Exhibition*. Austin: Austin Conference Center. Interactive media.

Ahlquist, S. (2016, April – 2016, June). Multi-sensory Architectures. In P. Smith (curator), *Work in Material Systems by Sean Ahlquist*. Carbondale: Southern Illinois University – School of Architecture Gallery. Solo exhibition of mixed media and interactive installation.

Ahlquist, S., O'Modhrain, S. & Chesney, D. (2015, March – 2015, April). Social Sensory Surfaces. In *Projects from the Research through Making Grant 2014-15*. Ann Arbor: Liberty Research Annex Gallery. Mixed media and interactive environment.

Ahlquist, S. (2013, January). Textile Morphologies. In A. Menges (curator), *Textiles Research for the Institute for Computational Design by Sean Ahlquist*. Stuttgart: University of Stuttgart – Faculty of Architecture Gallery. Solo exhibition of multiple textile installations.

Ahlquist, S. (2012, August – 2012, October). Material Equilibria. In A. Tabatabai (curator), *Works by Sean Ahlquist*. Copenhagen: ggggallery. Solo exhibition of textile installation.

Ahlquist, S. (2011, October). Integration of Behaviour-based Computational and Physical Models Design Computation and Materialisation of Morphologically Complex Tension-Active Systems. In C. Gengnagel (curator), *Exhibition for the Design Modeling Symposium 2011*. Berlin: UdK Gallery. Mixed media.

Ahlquist, S. (2009, October). Articulating Computational Meshes. In C. Gengnagel (curator), *Exhibition for the Design Modeling Symposium 2009*. Berlin: UdK Gallery. Mixed media.

Ahlquist, S. & Fleischmann, M. (2008, April). Spatial and Material System. In A. Menges (curator), *Exhibition of work from the Architectural Association*. Beijing: Architecture Biennial. Print media.

Ahlquist, S. & Fleischmann, M. (2008, June). Emergence, Material Experiments and Computation. In M. Weinstock (curator*), Exhibition of work from the Emergent Design and Technologies Programme*. London: Architecture Association. Cable-net installation.

Iwamoto, L., Scott, C. & Ahlquist, S. (2007, March – 2007, August). Jellyfish House. In J. Rosa (curator), *CCA at 100: Innovation by Design*. San Francisco: San Francisco Museum of Modern Art. Physical model.

Faulders, T. & Ahlquist, S. (2007, March – 2007, August). Airspace Tokyo. In J. Rosa (curator), *CCA at 100: Innovation by Design*. San Francisco: San Francisco Museum of Modern Art. Physical model.

Iwamoto, L., Scott, C. & Ahlquist, S. (2007, March – 2007, July). Jellyfish House. In Vitra Design Museum and Arts Center College of Design (curators), *Open House: Design for Intelligent Living*. Pasenda: Arts Center College of Design Gallery. Mixed media.

Iwamoto, L., Scott, C. & Ahlquist, S. (2006, August – 2006, December). Jellyfish House. In Vitra Design Museum and Arts Center College of Design (curators), *Open House: Design for Intelligent Living*. Essen (Germany): Galleries at Zeche Zolverein. Mixed media.

2.8 Publication of Work, Written by Others

Lincoln Center Video - SWAY

Atlassion Video

Interview – Creative.Impact (2021)

Maruzzella, M. (2020) Interview with Sean Ahlquist - University of Michigan for the 1in59 Radio Show. January 11. Retrieved from: https://www.andersoncenterforautism.org/-/sean-ahlquist-university-of-michigan

Lance, L.A.(2019). *Interview for the AACIL collaborative teaching project with Sean Ahlquist, Karina Tirado, Hallee Thompson and Phillip Allore*, December 9, Retrieved from http://www.lucyannlance.com/audio/120919/mangrove.mp3

Gallippo, E. (2019) *Working with Associate Professor Sean Ahlquist Gives Students Immersive Learning Experiences*. November 4. Retrieved from https://taubmancollege.umich.edu/news/2019/11/04/fall-2019-portico-working-associate-professor-sean-ahlquist-gives-students-immersive-learning

Pacheco, A. (2019). *Fabrics could be the next big thing in facades*, May 29, Retrieved from https://archpaper.com/2019/05/fabric-textiles-facadesplus

Middleton, T. (2019). *Open Stories: Cut from a different cloth*, April 4, Retrieved from https://www.atlassian.com/blog/teamwork/cut-from-a-different-cloth

Lau, W. & Risen, C. (2018). Social Sensory Architectures. *ARCHITECT Magazine,* Vol. 107 (7), 122-123. (online)

Glass, T. (2018). Social Sensory Architectures: Playscape that provides sensory feedback and encourages social interaction. *Prompt: Socially Engaging Objects and Environments*, (152-155), Basel: Birkhauser Architecture. (ISBN: 978-3035611939)

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2.9 Grants

Ahlquist, S. (2021-2022) ORCHID at Millwork Commons, Omaha. *Autism Action Partnership* ($48,000)

Ahlquist, S (2021/07 – 2021/10). ORCHID at Lincoln Center for Big Umbrella Outdoors. *Lincoln Center* ($48,000).

Shtein, M., Ahlquist, S. & Sample, A. (2020/08 – 2022/04) Highly customizable, breathable N95 mask design utilizing kirigami-enabled filters and sensor platforms to maximize comfort and monitor usage patterns. *NSF-RAPID* ($200,000).

Ahlquist, S. (2020/02). Installations for the Common Senses Festival Exhibition at KANEKO Gallery. *Autism Action Partnership* ($52,000).

Ahlquist, S. (2019/10 – 2020/8). Sensory Playscape Field Study and TechTwlight Installation. *Ann Arbor HandsOn Museum* ($20,000).

Ng, T., Ahlquist, S. & Filipov, E. (2019/10) From Knit to Shell – Functionally Graded Knits for Concrete Monocoque Casting. *University of Michigan Office of Research – Preliminary Research* ($15,000).

Ahlquist, S. & Purves, W. (2019/09-2022/09*). Sensorial Architectural Interventions for the Ann Arbor Center for Independent Living*. Buhr Foundation for the AACIL. ($30,000).

Ahlquist, S., Filipov, E. & Shaw, J. (2019/08) Exploration in design, engineering and simulation of a novel lightweight, modular glass-fiber reinforced beam structural system. *University of Michigan Office of Research – Preliminary Research* ($12,500).

Ng, T., Ahlquist, S. & Filipov, E. (2019/06) From Knit to Shell – Functionally Graded Knits for Concrete Monocoque Casting. *University of Michigan – Taubman College of Architecture and Urban Planning – Prototyping Tomorrow* ($20,000).

Ahlquist, S. (2018/9 – 2019/12). Sensorial Accessibility: Manners of architectural intervention engendering civic engagement for a neurodiverse population. *Exhibit Columbus University Design Research Fellowship* ($10,000).

Filipov, E., Ahlquist. S. & Scruggs, J. (2018/12) Deployable and Adaptable Tensegrity Structures from Knitted Origami's. University of Michigan – MCubed ($60,000).

Ahlquist, S. & O'Dell, D. (2018/7 – 2019/8). Inclusive Socio-Sensory Theater: Combing sensorial engagement and participatory theater as means to model social behavior for children with autism spectrum disorder in complex sensory-toxic environments. *University of Michigan – Taubman College of Architecture and Urban Planning* ($20,000).

Ahlquist, S. (2018/4 – 2018/8). Tensile fabrics and CNC fabrication. *Autodesk, Inc.* ($10,000).

Ahlquist, S. (2018/08 – 2021/12). Bailment of Stoll CMS 830 ADF-24 W 7.2ADF to University of Michigan. *General Motors LLC* ($213,000).

Ahlquist, S. (2018/01 – 2021/12). Structural Knits for Automotive Seating – Amendment to 'Establishment of Multifunctional Vehicle Systems Division in General Motors Institute at the University of Michigan.' *General Motors LLC* ($705,000).

Ahlquist, S. & Colombi, C. (2017/8 - 2018/9). Kinesthetic Environment for Sensory Regulation, Engaged Learning and Social Interaction. *Michigan, State of, Economic Development Corporation - Mi-Kickstart Life Sciences Grant* ($20,000)

Nanda, U., Adams, L. & Ahlquist, S. (2017/6 – 2018/12). Sensory Wellbeing for Adolescents with Developmental Disorders: Creating (and testing) a Sensory Wellbeing Hub with a 'Sensthetic' approach. *American Society of Interior Designers (ASID) Transform Grant* ($70,000).

Ahlquist, S., McGee, W. & Sodano, H. (2017/6 – 2017/3). Morphable Architectures: Explorations from fiber structure to material behavior and architectural system. *University of Michigan – Taubman College of Architecture and Urban Planning, Research through Making Grant* ($20,000).

Brei, D., Ahlquist, S. & Shaw, J. (2016/1 – 2021/12). Establishment of Multifunctional Vehicle Systems Division in General Motors Institute at the University of Michigan. *General Motors LLC* ($6,000,000).

Ahlquist, S., McGee, W. & Sodano, H. (2016/8 – 2017/7). Generating seamless and structurally differentiated composite materials with CNC knitting technology. *Michigan, State of, Economic Development Corporation, MTRAC Advanced Transportation* ($70,000).

Ahlquist, S. (2016/11 – 2017/6) CNC Knitted Tensile Fabric Structures. *Autodesk, Inc.* ($15,000).

Ahlquist, S., Sharmin, S. & Finch, D. (2016/6 – 2017/6). Manufacturing of seamless and structurally differentiated carbon fiber. *National Science Foundation (NSF) I-CORPS* ($50,000).

Ahlquist, S. (2016/1 – 2016/2). 3D-knitted Multi-Functional Textiles and Fiber-reinforced Composites. *Regional Initial Customer Discovery Program (ICD) at Lake Superior State University* ($500).

Ahlquist, S., Colombi, C., Ketcheson, L. & Ulrich, D. (2015/11 – 2017/12). Tactile interfaces and environments for children with autism. *University of Michigan, MCubed Program* ($15,000).

Ahlquist, S. & Chesney, D. (2015/8 – 2016/12). Tactile Technologies for Play and Learning: Framework for engaged transdisciplinary teaching and development of technologies for children with Autism Spectrum Disorder. *University of Michigan, Center for Research on Learning and Teaching (CRLT), Transforming Learning for the Third Century Grant* ($50,000).

Ahlquist, S. (2015/1 – 2016/1). Integrated Conductivity in Textiles for Sensing Degrees of Touch and Displacement. University of Michigan Office of Research (UMOR), Small Projects Grant ($8,100).

Ahlquist, S. (2015/1 – 2016/5). Morphable Surfaces: Knitted Seamless Textile-Composite Material Systems with Variable Deformability, and Integrated Sensing and Actuation. *American Institute of Architects (AIA) Upjohn Research Grant* ($40,000).

Ahlquist, S. (2014/9 – 2015/6). Autism Spectrum Disorder, Sensory Processing and Tactile Interfaces. *University of Michigan Faculty Scholars Program in Integrative Medicine* ($1,500).

Ahlquist, S., O'Modhrain, S. & Chesney, D. (2014/6 – 2015/3). Social Sensory Surfaces: Physical Computing, Tactile (Textile) Interfaces and Collaborative Tools for Children with Autism Spectrum Disorder. *University of Michigan – Taubman College of Architecture and Urban Planning, Research Through Making Grant* ($20,000).

Ahlquist, S. & Waas, A. (2014/1 – 2014/12). Flat-bed Knitting Machine and Related Resources for University of Michigan. *Co-sponsored by U-M Taubman College of Architecture and Urban Planning, U-M College of Engineering – Department of Aerospace Engineering and U-M OVPR Shared Equipment Fund* ($158,000).

Ahlquist, S. & McGee, W. (2013/6 – 2014/3). Knit Architectures. *University of Michigan – Taubman College of Architecture and Urban Planning, Research Through Making* ($20,000).

Ahlquist, S. (2013/6 – 2014/8). Innovations in the Design of Robust Lightweight Materials Through Exploration of the Structural Principles of Banana Plants. *University of Michigan Office for Research (UMOR)* ($15,000).

Ahlquist, S. (2013/1 – 2013/2). Workshop and Installation for Research and Learning in Material Computation at the University of Stuttgart. *University of Michigan, International Institute, Experiential Learning Fund* ($15,800).

Ahlquist, S., Essl, G. & Waas, T. (2013/12 – 2014/12). Mechanical Properties and Computational Methods for Composites Formed of Pre-stressed Knitted Textiles of Varying Fibrous Structures. *University of Michigan, MCubed Program* ($60,000).

2.10 Patents

Ahlquist, S. and McGee, W. (2018/2/19) Method for Mass-customization and multi-axial motion with a knit-constrained actuator, *U.S. Provisional Application*, No. 62/632,032

Ahlquist, S. and Wang, W.C. (2017/1/9) A method of actuation using knit-constrained pneumatics, *U.S. Provisional Application,* No. 62/443,938

Waas, A., Ahlquist, S. and McGee, W. (2015/9/15) Method to increase structural performance, strength and durability of fabric reinforced composites materials by pre-stressing, *U.S. Patent Application*, No. 14/854,175

3 TEACHING

3.1 Courses Taught

University of Michigan
(2022, winter) *Arch 739: Capstone for MS-DMT*
(2021, fall). *Arch 708: Process in Material Computation.*
(2018, winter). *ARCH 738/ARCH 739: Capstone for Master of Science in Digital Technologies and Material Systems (MSDT/MSMS)*
(2017, fall). *ARCH 708: Processes in Material Computation.*
(2017, fall). ARCH 409/*ARCH 509: ENGAGE – Tactile Architectures.*
(2016, fall). *ARCH 708: Processes in Material Computation.*
(2016, fall). *ARCH 409/ARCH 509: ENGAGE – Tactile Architectures.*
(2016, winter). *ARCH 739: Capstone for Master of Science in Material Systems.*
(2016, winter). *ARCH 409/ARCH 509: ENGAGE – Tactile Architectures.*
(2015, fall). *WORKSHOP: Mindfulness for Autism.*
(2015, fall). *WORKSHOP: Introduction to Machine Knitting.*
(2015, fall). *ARCH 409/ARCH509: STRETCH – Technology embedded playscapes – Collaborative course with EECS 481.*
(2015, fall). *ARCH 708: Processes in Material Computation*
(2015, winter). *WORKSHOP: Introduction to Machine Knitting.*
(2015, winter). *ARCH 409/ARCH 509: TOUCH – Textile Interfaces and Sensory Feedback. Collaborative course with PAT 498/598.*
(2015, winter). *ARCH 591: Generative Design Computing.*
(2014, fall). *ARCH 509: Lightweighting.*
(2014, fall). *ARCH 409: STRETCH – Technology embedded playscapes – Collaborative course with EECS 481.*
(2014, winter). *ARCH 700: Practicum for Master of Science in Material Systems.*
(2014, spring). *ARCH 739: Capstone for Master of Science in Material Systems.*
(2013, fall). *ARCH 672: Propositions Studio – Textile Morphologies.*
(2013, fall). *WORKSHOP: Collaboration with Experts in Machine Knitting.*
(2013, winter). *ARCH 700: Practicum for Material of Science in Material Systems.*
(2012, fall). *ARCH 708: Processes in Material Computation.*

University of Stuttgart
(2012. spring/summer). *CAAD/CAM II 2.2.6: Seminar – Deep Surface Building Project.*
(2012. spring/summer). *CAAD/CAM II 2.2.2: Studio – Deep Surface Morphologies.*
(2011. fall/winter). *CAAD/CAM II 2.2.2: Studio – Spatial Intensifiers.*
(2011. spring/summer). *CAAD/CAM II 2.2.6: Seminar – Generative Design.*
(2010. fall/winter). *CAAD/CAM II 2.2.6: Seminar – Membrane Morphologies.*
(2010. fall/winter). *CAAD/CAM II 2.2.6: Seminar – Deep Surface Prototypes.*

3.2 Studio and Workshops at other institutions

(2018, winter). *FashionTech Hackathon. Kent State University.*
(2016, fall). *Workshop at ACADIA Conference – Smart Textiles. University of Michigan.*
(2016, summer). *Architectural Association Visiting School – Dubai: Articulate Performance.*
(2014, summer). *333 Design Studio – Textile Morphologies. California College of the Arts (CCA).*
(2014, winter). *Workshop at TexFab5 Symposium – Textile Morphologies. University of Texas – Austin.*
(2012, fall). *Programming Particle Systems in Processing. University of Arkansas.*
(2011, summer). *Digital Crafting Workshop – Textiles as Material: How to Brace. CITA – Royal Academy of Fine Arts, School of Architecture & Design School, Kolding.*
(2010, fall). *Masterclass workshop – Tensioned Morphologies. University of Technology Sydney.*
(2010, spring). *Workshop at Smartgeometry Conference – Deep Surfaces. Institute for Advanced Architecture of Catalonia – Barcelona.*

3.3 Dissertation Committees

(Current). *Ph.D. Dissertation Committee – University of Michigan, Architecture.* Yi-Chin Lee.
(Current). *Ph.D. Dissertation Committee – University of Michigan, Design Science.* Koray Benli
(2019). *Ph.D. Dissertation Committee – University of Michigan, Aerospace.* David Singer.
(2017). *Ph.D. Dissertation Committee – University of Michigan, Aerospace.* Cyrus Kosztowny.

3.4 Juries (other institutions)

(2018). *FashionTech Hackathon Jury.* Kent State University: Fashion School.
(2018). *Master's Thesis Review – Super Jury.* Kent State University: College of Architecture & Environmental Design.
(2016). *Master of Science – Studio One Program Final Review.* University of California – Berkeley: College of Environmental Design.
(2013). *Material Performance Studio.* Harvard University: Graduate School of Design.
(2012). *Master of Science in Material Systems Review.* University of Stuttgart: Institute for Computational Design.

4 SERVICE

4.1 Committees

College

(2021-2022) *P&T Committee.* University of Michigan: Taubman College of Architecture and Urban Planning
(2018). *Committee DEI Advanced Degree Program (representative for Master of Science in Digital Material Technologies).* University of Michigan: Taubman College of Architecture and Urban Planning.
(2017-2018). *Architecture Fellowship Search Committee.* University of Michigan: Taubman College of Architecture and Urban Planning.
(2017-2018). *Post-doc and Dual Career Hire Committee.* University of Michigan: Taubman College of Architecture and Urban Planning.
(2015-2016). *Technical Committee and Planning for ACADIA 2016 Conference at U-M.* University of Michigan: Taubman College of Architecture and Urban Planning.

Program

(2021-current) Director of Master of Science – Digital Material Technologies. University of Michigan: Taubman College of Architecture and Urban Planning.
(2014-2015). *Master of Architecture Admissions Committee.* University of Michigan: Taubman College of Architecture and Urban Planning.
(2012-present). *Master of Science in Material Systems Admissions Committee.* University of Michigan: Taubman College of Architecture and Urban Planning.
(2012-present). *Master of Science in Material Systems, curriculum development, marketing and outreach.* University of Michigan: Taubman College of Architecture and Urban Planning.

University

)2021-present). *Member of the Arts Initiative: Goal Group – Partnering with Communities & the Public.* University of Michigan
(2020-present). *Faculty Chair for the Research Administration Advisory Council Executive Commitee.* University of Michigan Office of Research and Sponsored Projects.
(2018). *Executive committee for the Sensory Science Initiative Inaugural Symposium (representative for Architecture).* University of Michigan.
(2016-present). *Sensory Science Initiative Committee.* University of Michigan.
(2012-2016). *Undergraduate Research Opportunity Program (UROP) Supervisor.* University of Michigan: College of Literature, Science and the Arts.
(2012-present). *Integrative Systems + Design (via participation Design Science Program).* University of Michigan: College of Engineering.

4.2 Service Organizations

Academic/Professional Organizations

(2018). *Panel for Small Business Innovation Research (SBIR) - Composites & Specialized Functional Materials*, National Science Foundation (NSF): Division of Industrial Innovation and Partnerships.
(2017). *Panel for Structural and Architectural Engineering and Materials (SAEM).* National Science Foundation (NSF): Division of Civil, Mechanical and Manufacturing Innovation.
(2016). *Advisory Panel for Peer-review Process.* Association for Computer-Aided Design in Architecture (ACADIA).
(2015-2016). *Scientific Committee (peer-review for conference papers).* Digital Modeling Symposium – Copenhagen (DMSC).
(2014-2018). *Scientific Committee (peer-review for conference papers).* TxA Interactive Conference.
(2014-2017). *Scientific Committee (peer-review for journal papers).* Artificial Intelligence for Engineering Design, Analysis and Manufacturing (AIEDAM).
(2014-2016). *Scientific Committee (peer-review for conference papers).* Robotic Fabrication in Architecture, Art, and Design (RobArch).
(2014-2015). *Scientific Committee (peer-review for journal papers). Computer-Aided Design (CAD).*

(2014-2015). *Scientific Committee (peer-review for conference papers). Association of Collegiate Schools of Architecture (ACSA).*
(2012-2018). *Scientific Committee (peer-review for conference papers).* Association for Computer-Aided Design in Architecture (ACADIA).
(2012-2015). *Board of Directors (member).* Association for Computer-Aided Design in Architecture (ACADIA).