

SHELBY ELIZABETH DOYLE AIA NCARB LEED AP

Associate Professor, Stan G. Thurston Professor of Design Build, Department of Architecture, College of Design
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I. CANDIDATE INFORMATION

Education

- 2011** Master of Architecture, Harvard Graduate School of Design, Cambridge, MA, USA
Thesis Advisor, Toshiko Mori, *Neft Dashlari: Architecture, Oil and Urbanism in the Trans-Caspian Union*
- 2004** Bachelor of Science in Architecture, University of Virginia, Charlottesville, VA, USA
- 2003** Denmark International Study Program in Architecture, Copenhagen, Denmark

Academic Appointments

- 2021-** Associate Professor (with tenure) Iowa State University Department of Architecture, Ames, IA, USA
Stan G. Thurston Professorship in Design Build
- 2015-2021** Assistant Professor Iowa State University Department of Architecture, Ames, IA, USA
ISU President High-Impact Hire in Design-Build and Digital Fabrication
- 2013-2015** Visiting Assistant Professor, Louisiana State University School of Architecture, Baton Rouge, LA, USA
- 2013-2015** Research Fellow, Louisiana State University Coastal Sustainability Studio, Baton Rouge, LA, USA
- 2013** Instructor, Parsons The New School for Design School of Design Strategies, New York, NY, USA
- 2013+2014** Summer Instructor, University of Houston Pan Asia Mekong Summer Program with William Truitt
Southeast Asia: Cambodia, Vietnam, Myanmar, Thailand
- 2011-2012** J. William Fulbright Research Fellow, Phnom Penh, Cambodia
- 2012** Instructor, Urban Lab Phnom Penh, Phnom Penh, Cambodia
- 2011-2012** Instructor, Limkokwing University Faculty for the Built Environment, Phnom Penh, Cambodia
- 2011** Fabrication Lab Assistant, MIT Media Lab at Haystack Mountain School of Crafts, Deer Isle, ME, USA
- 2011** Studio Instructor, Harvard GSD Career Discovery Architecture, Cambridge, MA, USA
- 2010-2011** Teacher, Design Initiative for Youth, Citizen Schools at McCormack Middle School, Boston, MA, USA
- 2008-2011** Teaching Assistant, Harvard Graduate School of Design, Cambridge, MA, USA
- 2004** Teaching Assistant, University of Virginia, Charlottesville, VA, USA

Professional Experience

- 2013** Design Staff, NAO, New York, NY, USA
- 2012** Curator, Our City Festival, Phnom Penh, Cambodia
- 2011-2012** Project Manager, Collective Studio, Phnom Penh, Cambodia
- 2005-2009** Project Coordinator, Architecture for Humanity, New York, NY, USA
- 2005-2008** Design Staff, CookFox Architects LLP, New York, NY, USA
- 2005** Freelance Design Staff, A+I Design Corporation, New York, NY, USA
- 2004-2005** Design Staff, T.H. Bishop Architect, PLLC now Butler Rogers Baskett, New York, NY, USA
- 2003+2004** Summer Design Staff, Andrew Stuart, AIA Architect, Round Hill, VA, USA

Licensure / Certification

- 2016-** Registered Architect State of Iowa #07198
- 2016-** National Council of Architectural Registration Board Certificate #121896
- 2016-** American Institute of Architects, Member #38550112
- 2006-** LEED Accredited Professional, US Green Building Council

II. SCHOLARSHIP

Journal Articles – Peer Reviewed

- 2020 SOM's Computer Group: Narratives of Women in Early Architectural Computing**
Shelby Doyle and Nick Senske
International Journal of Architectural Computing, August 2020 online. Print publication forthcoming.
- 2019 Women's Work: Attributing Future Histories of the Digital in Architecture**
Shelby Doyle and Nick Senske
D. Kuhlmann, ed. GENDER MATTERS The Plan Journal, vol. 4 [2], 2019 (pp. 307-326)
- 2019 Attribution and Artificial Intelligence: Embedding Provenance with Material Metadata**
Shelby Doyle and Nick Senske
May, K. et al (Eds.) CLOG x ARTIFICIAL INTELLIGENCE 2018 Published in New York (pp. 72-73)
- 2018 Digital Provenance and Material Metadata: attribution and co-authorship in the age of artificial intelligence** Shelby Doyle and Nick Senske
Clayton M., Daas M. et al (Eds.) *IJAC Vol. 16 Issue 4. Artificial Intelligence and Robotics in Architecture: Autonomy, agency and indeterminacy* Sage Publishing on behalf of the International Journal of Architectural Computing (pp. 271-280)
- 2018 American Wild: Digital Preservation for Changing Landscapes**
Shelby Doyle, Justine Holzman, Forbes Lipschitz, and Halina Steiner
Neveau, M., Dayer, C. et al (Eds.) *Journal of Architectural Education* 72:2 - Preserve
Taylor & Francis, Ltd. on behalf of the Association of Collegiate Schools of Architecture, Inc (pp. 295-305)
- 2018 Between Design And Digital: Bridging The Gaps In Architectural Education**
Shelby Doyle and Nick Senske.
Brown, J. and Hufford, A. (Eds.) *Charrette 4(1), Journal of the Association of Architectural Educators*. AAE (pp. 101-116)
- 2018 Disrupt/Displace: Translating Territory**
Shelby Doyle and Leslie Forehand
Neveau, M., Dayer, C. et al (Eds.) *Journal of Architectural Education* 72:1 - at/o
Taylor & Francis, Ltd. on behalf of the Association of Collegiate Schools of Architecture, Inc (pp. 78-90)
- 2017 Fabricating Architecture: Digital Craft as Feminist Practice**
Shelby Doyle and Leslie Forehand
Graham, J. et al (Eds.) *The Avery Review* #25. Office of Publications at the Columbia University Graduate School of Architecture, Planning, and Preservation. <http://averyreview.com/issues/25/fabricating-architecture>
- 2016 Materializing the Digital: Architecture as Interface**
Shelby Doyle
Loyola, M. (Ed) *Revista Materia Arquitectura* #13. (pp. 110-114) Faculty of Architecture. University San Sebastián. <http://materiaarquitectura.com/index.php/MA/article/view/56/69>
- 2012 City of Water: Architecture, Urbanism and the Floods of Phnom Penh** Shelby Doyle
Kirkwood, N. and Seeumpornroj, P. (Eds.) *Nakhara Journal of Environmental Design Planning* Volume 12. Faculty of Architecture, Chulalongkorn University in Bangkok, Thailand (pp. 135-154)
- 2010 Small Architecture: Home/Less** Shelby Doyle
White, S. (Ed) *Small Architecture, On Site Journal: Small Things* vol. 23 [Alberta, Canada]

Book Chapters

- 2023 A Carrier Bag of Tools for Computational Feminism**
(forthcoming) Homing the Machice, Galo Canizares and Zach Cohen (Ed)
- 2023 Flood Pulse Urbanization: Phnom Penh and the Tonle Sap** Shelby Doyle
(forthcoming) Way Beyond Bigness: The Need for a Watershed Architecture, Derek Hoeflerlin (Ed)
- 2023 Architecture and Data** Shelby Doyle
(forthcoming) American Institute of Architects Handbook of Professional Practice
- 2021 Chaktomuk: The Hydrology of the Four Faces** Shelby Doyle
in Sereypagna, P. and McGrath B. (Eds) Genealogy of Bassac. Urban Research: Terreform, 2021. (pp. 82-99)
- 2019 Reimagining Extrusions** Radical/Matter*
in Garófalo, L. and Khan, O. (Eds) "Bioclimatic Ceramic Assemblies III, 2019. (pp.124-145)
*Joshua Stein (coordinator), Andy Brayman, Craig Copeland, Shelby Doyle, Kelly Justice, Shawn Murrey, Catie Newell, Hannah Thompsett, Mark Walden, and Ashley Chiffy
- 2017 Searching for Cyborgs** Shelby Doyle and Leslie Forehand
in Frichot, H., Gabriellsson, C., and Runting, H. (Eds). Architecture and Feminisms: Ecologies, Economies, Technologies. Routledge, 2017. (pp. 25-29)
- 2013 City of Water: Architecture, Infrastructure, and the Floods of Phnom Penh** Shelby Doyle
in Gleeson, E. Phnom Penh: Rescue Archeology: Contemporary Art and Urban Change in Cambodia

Conference Proceedings – Peer Reviewed Full Papers

- 2021 Reflections on the Past 40+ Years of ACADIA** Shelby Doyle, Melissa Goldman, and Biayna Bogosian
K. Dörfler, S. Parascho, J. Scott, B. Bogosian, B. Farahi, J. del Castillo y López, J. Grant, V. Noel.
(Eds) ACADIA 2021: Realignment Toward Critical Computation [Proceedings of the 41st Annual Conference of the Association of Computer Aided Design in Architecture. Online and Global. 3-6 November 2021. (pp. 650-657)
- 2021 Computational Access** Shelby Doyle and Nick Senske
K. Dörfler, S. Parascho, J. Scott, B. Bogosian, B. Farahi, J. del Castillo y López, J. Grant, V. Noel.
(Eds) ACADIA 2021: Realignment Toward Critical Computation [Proceedings of the 41st Annual Conference of the Association of Computer Aided Design in Architecture. Online and Global. 3-6 November 2021. (pp. 540-545)
- 2020 Melting 2.0** Shelby Doyle and Erin Hunt
M. Yablonina, A. Marcus, S. Doyle, M. del Campo, V. Ago, B. Slocum (Eds) ACADIA 2020: Distributed Proximities / Volume II: Projects [Proceedings of the 40th Annual Conference of the Association of Computer Aided Design in Architecture. Online and Global. 24-30 October 2020. (pp. 192-197)
- 2019 Dissolvable 3D Printed Formwork: exploring additive manufacturing for reinforced concrete**
Shelby Doyle and Erin Hunt
Bieg, K., Briscoe, D., and Odom, C. (Eds.) Ubiquity and Autonomy: Paper Proceedings of the 39th Annual Conference of the Association for Computer Aided Design in Architecture ACADIA, October 24-26, 2019, Austin, Texas (pp. 178-188)
- 2019 Melting: Augmenting Concrete Columns with Water Soluble 3D Printed Formwork**
Shelby Doyle and Erin Hunt
Bieg, K., Briscoe, D., and Odom, C. (Eds.) Ubiquity and Autonomy: Projects Catalog of the 39th Annual Conference of the Association for Computer Aided Design in Architecture ACADIA, October 24-26, 2019, Austin, Texas (pp. 92-97)

- 2018** **WAFT** Shelby Doyle, Erin Hunt and Kelly Devitt
Anzalone, P., Del Signore, M., and John Wit, A. (Eds.) Recalibration: On Imprecision and Infidelity: Projects Catalog of the 37th Annual Conference of the Association for Computer Aided Design in Architecture ACADIA, October 18-20, 2018, Mexico City, Mexico (pp. 192-197)
- 2018** **Cyborg Sessions: A Case Study for Gender Equity in Technology** Shelby Doyle, Leslie Forehand, Erin Hunt, Nick Loughrey, Sarah Schneider, Nick Senske Fukuda, T., Huang, W., Janssen, P., Crolla, K., and Alhadidi, S. (Eds.) Learning, Prototyping and Adapting: Proceedings of the 23rd International Conference on Computer-Aided Architectural Design Research in Asia. CAADRIA, 2018. Beijing, China. (pp. 71-80)
- 2017** **Computational Feminism: Searching for Cyborgs** Shelby Doyle, Leslie Forehand, and Nick Senske in Nagakura, T. and Tibbits, S. (Eds.) Disciplines and Disruption: Conference Proceedings of the 36th Annual Conference of the Association for Computer Aided Design in Architecture. ACADIA 1-4 Nov 2017, Boston, MA. (pp. 232-237)
- 2017** **IM_RU** Shelby Doyle and Erin Hunt
Lamere, J., and Parreño Alonso, C. (Eds.) Disciplines and Disruption: Projects Catalog of the 36th Annual Conference of the Association for Computer Aided Design in Architecture. ACADIA, November 1-4, 2017, Boston, MA. (pp. 128-133)
- 2017** **Democratizing Access and Identifying Inequalities: Gender, Technology, Architecture** Shelby Doyle and Nick Senske Smith, R., Diaz Moore, K., and Zhao, W. (Eds.) Architecture of Complexity design, systems, society and environment Proceedings of the Architectural Research Centers Consortium Conference ARCC 14-17 Jun 2017. Salt Lake City, UT (pp. 56-62)
- 2017** **The Lore of Building Experience: Deconstructing Design-Build** Shelby Doyle and Rob Whitehead Bowen, C., Carraher E., Johnson H., Leither L., Mills, J. (Eds.) Begin W/ Why: Ethics and Values in Beginning Design: Proceedings of the 33rd National Conference of the Beginning Design Student. NCBDS 9-11 Mar 2017. Salt Lake City, UT. (pp. 87-96)
- 2017** **Unplugging Inequality: Computational Futures for Architecture** Shelby Doyle and Nick Senske in Bowen, C., Carraher E., Johnson H., Leither L., Mills, J. (Eds.) Begin W/ Why: Ethics and Values in Beginning Design: Proceedings of the 33rd National Conference of the Beginning Design Student. NCBDS 9-11 Mar 2017. Salt Lake City, UT. (pp. 96-103)
- 2016** **Exploring Learning Objectives for Digital Design in Architectural Education** Shelby Doyle and Nick Senske in da Costa, M. J. R. C., Roseta, F., Lages, J. P., & da Costa, S. C. (Eds.). (2017). Architectural Research Addressing Societal Challenges: Proceedings of the EAAE ARCC 10th International Conference (EAAE ARCC 2016), 15-18 June 2016. CRC Press. Lisbon, Portugal. (pp. 977-982)
- 2016** **Introducing Digital Soft Skills: Bridging the Gaps in Architectural Education** Shelby Doyle and Nick Senske in da Costa, M. J. R. C., Roseta, F., Lages, J. P., & da Costa, S. C. (Eds.). (2017). Architectural Research Addressing Societal Challenges: Proceedings of the EAAE ARCC 10th International Conference (EAAE ARCC 2016), 15-18 June 2016, Lisbon, Portugal. CRC Press. (pp. 1021-1027)
- 2016** **Thinking + Making: Digital Craft as Social Project** Shelby Doyle in da Costa, M. J. R. C., Roseta, F., Lages, J. P., & da Costa, S. C. (Eds.). (2017). Architectural Research Addressing Societal Challenges: Proceedings of the EAAE ARCC 10th International Conference (EAAE ARCC 2016), 15-18 June 2016, Lisbon, Portugal. CRC Press. (pp. 671-676)
- 2016** **Between Design and Digital: Bridging the Gaps in Architectural Education** Shelby Doyle and Nick Senske in Weber, P., et al. (Ed.) Research Based Education: Proceedings of the 2016 Association of Architectural Educators (AAE) International Conference, 7-9 April 2016. London, UK. Bartlett School of Architecture, UCL. (pp. 192-209)

- 2016 Soft Skills for Digital Designers** Shelby Doyle and Nick Senske
in Ponitz J., Olsen C., and Trudell, C. (Eds.) 1 to 1: Proceedings of the 32nd National Conference of the Beginning Design Student. NCBDS 25-28 Feb 2016. San Luis Obispo, CA. (pp. 475-480)
- 2016 Bringing Bauhaus Back: Digital Architecture + Contemporary Craft** Shelby Doyle
in Alfredo, A. et al (Ed) Cross-Americas: Probing Disglobal Networks Proceedings of the 2016 Association of Collegiate Schools of Architecture International Conference. 29 Jun -1 Jul, 2016, Santiago, Chile. (pp. 38-44)
- 2016 Hydrophobic Paper Architecture: Studies in the Sustainability of Impermanent Structures** Shelby Doyle and Leslie Forehand. in Alfredo, A. et al (Ed) Cross-Americas: Probing Disglobal Networks Proceedings of the 2016 Association of Collegiate Schools of Architecture International Conference. 29 Jun - 1 Jul, 2016, Santiago, Chile. (pp. 350-355)
- 2015 Losing Ground: Urban Sacrifice Zones in the Mississippi River Basin** Shelby Doyle
in Sheppard, L. and Ruy, D. (Eds.) Proceedings of the Association of Collegiate Schools of Architecture 103rd Annual Meeting: The Expanding Periphery and the Migrating Center. 19-21 Mar 2015. Toronto, Ontario. (pp. 667-678)
- 2015 Learning from Las Vegas, in Phnom Penh** Shelby Doyle
in Sheppard, L. and Ruy, D., (Eds.) Proceedings of the Association of Collegiate Schools of Architecture 103rd Annual Meeting: The Expanding Periphery and the Migrating Center. 19-21 Mar 2015. Toronto, Ontario. (pp. 61-67)
- 2015 Fabricating the Delta: Introducing Interdisciplinary Design Methods** Shelby Doyle
in Jackson, M., Marinic, G., Lannis, K. (Eds.) in Proceedings of the 31st National Conference on the Beginning Design Student Conference Proceedings: Engaging Media. 26-28 Feb 2015. Houston, TX. (pp. 132-141)
- 2015 TinyTED: Site Matters: Introducing Context** Shelby Doyle
in Jackson, M., Marinic, G., Lannis, K. (Eds.) in Proceedings of the 31st National Conference on the Beginning Design Student Conference Proceedings: Engaging Media. 26-28 Feb 2015. Houston, TX. (pp.62)
- 2014 Critical Travel and Work- Mekong: Ho Chi Minh to Phnom Penh** Shelby Doyle and Bill Truitt
in Stuart, J. and Wilson, M. (Eds.) Proceedings of Association of Collegiate Schools of Architecture 102nd Annual Meeting: Globalizing Architecture / Flows and Disruptions. 10-12 Apr 2014, Miami Beach, FL. (pp. 559-567)
- 2014 Edges: Introduction to Analog and Digital Fabrication** Shelby Doyle
in Wetzel, C.. and Johnson, L. (Eds.) Proceedings of the 30th National Conference on the Beginning Design Student. 3-5 Apr 2014. Chicago, IL. (pp. 451-457)
- 2013 City of Water: Architecture, Urbanism, and the Floods of Phnom Penh** Shelby Doyle
Abbate, A. and Kennedy R. (Eds.) in Proceedings of Association of Collegiate Schools of Architecture Fall Conference: Subtropical Cities / Design Interventions for Changing Climates. 17-19 Oct 2013. Ft. Lauderdale, FL. (pp. 19-29)

External Grants and Awards for Research / Creative Activities

- 2023 Haystack Mountain School of Crafts Fab Lab Residency**
Two weeks of funded travel, room and board and studio access. (~\$7,000)
- 2022 University Design Research Fellow for Exhibit Columbus**
PipeUP! BLDS: Tameka Baba, Forbes Lipschitz, Shelby Doyle, Halina Steiner (\$10,000) 25% award share \$2,500
- 2022 Iowa Chapter of the American Institute of Architecture Educator Award**
Shelby Doyle (certificate)

- 2022 Architectural Ceramic Assemblies Workshop** Boston Valley Terra Cotta)
Invited academic team: ISU. Funded room, board, and materials. (~\$2,000)
- 2022 3D Affordable Innovative Technologies (3D AIT) Housing Project**
PI: Pete Evans with Co-PI Chengde Wu and Nick Senske (\$222,459) 25% award share \$55,614
- 2022 Center for Global & Regional Environmental Research Grant**
Made in Iowa: Agro-waste Concrete for Disaster Resilient 3D Printed Construction
PI: Shelby Doyle with Co-PI Chengde Wu (\$30,000) 50% award share \$15,000
- 2022 Haystack Mountain School of Crafts Open Studio Residency**
Two weeks of funded room and board and studio access. (~\$5,000)
- 2021 Canadian Centre for Architecture The Digital Now: Architecture and Intersectionality**
Symposium (Making With): Computational Intersectionality in Architecture
Selected participant for seminar funded by Andrew W. Mellon Foundation's Architecture, Urbanism, and the Humanities Initiative (\$20,000)
- 2020 Autodesk Technology Center Grant**
PI - Unrestricted funds for research and teaching support (\$20,000)
- 2020 Association for Collegiate Schools of Architecture Creative Achievement Award**
Shelby Doyle for ISU Computation & Construction Lab (certificate)
- 2019 Autodesk ACADIA Emerging Research Award: Project Category**
Co-PI with Erin Hunt (\$6,000); 50% award share \$3,000
- 2019 Building Technology Educators' Society Emerging Faculty Award**
Shelby Doyle (nominated / certificate) (\$1,000)
- 2018 Architectural Research Centers Consortium Research Incentive Award**
Co-PI with Nick Senske, Polycasting: Multi-material 3D Printed Formwork for Reinforced Concrete (\$5,000)
50% award share \$2,500
- 2018 American Institute of Architects Upjohn Research Initiative**
Co-PI with Nick Senske, Polycasting: Multi-material 3D Printed Formwork for Reinforced Concrete (\$14,300)
50% grant share \$7,150
- 2018 Architectural Ceramics Assemblies Workshop (Boston Valley Terra Cotta)**
Invited team: Radical / Matter Team. Funded room, board, and materials. (~\$2,000)
- 2017 Joan B. Calambokidis Innovation in Masonry Design Competition Winner**
Mashrabiya 2.0 Co-PI with Leslie Forehand, Erin Hunt, and Nick Senske (\$10,000) 25% award share \$2,500
- 2017 American Association of Geographers Enrichment Funds** Annual Meeting Registration (\$495)
- 2011** J. William Fulbright Fellow Cambodia (\$20,000)
City of Water: Architecture, Infrastructure, and the Floods of Phnom Penh
- 2010** Edward Larrabee Barnes Fellowship at Haystack Mountain School of Crafts (\$5,000)

Internal Grants and Awards for Research / Creative Activities

- 2022 ISU Big 12 Faculty Fellowship**
PI - Texas Tech University-Lubbock: Digital Fabrication Lab (\$1,450)

- 2018 Integration of Creative and Collaborative Architectural Robotics**
ISU Computation Advisory Committee Grant (now CASTLE)
Co-PI with Nick Senske (\$50,000); 50% grant share \$25,000
- 2017 Daniel J. Huberty Faculty Fellowship**
PI - Casting Biodegradable Formwork (\$10,000)
- 2016 ISU Vice President for Research Grant**
PI - ISU Computation + Construction Lab (\$204,000) with \$408,000 match from College & Department
- 2016 ISU Daniel J. Huberty Faculty Fellowship**
PI - Coding Water: Material Studies for Temporary Structures (\$10,000)
- 2016 ISU Big 12 Faculty Fellowship**
PI - University of Kansas: Studio 804 Design/Build Program (\$2,000)
- 2016 ISU Foreign Travel Grant**
EAAE/ARCC Conference Lisbon, Portugal (\$1,300)

Internal Grants and Awards for Teaching

- 2021 Catt Center Women Impacting ISU Calendar** (nominated / certificate)
- 2018 Faculty Award for Extraordinary Performance**, ISU College of Design (nominated / certificate)
- 2017 High-Definition Screens for Architecture Studios Phase 2** Co-PI with Leslie Forehand, and Nick Senske. ISU Computation Advisory Committee Grant (\$35,000); 33.33% grant share \$11,665
- 2016 High-Definition Screens for Architecture Studios Phase 1** Co-PI with Leslie Forehand, and Nick Senske. ISU Computation Advisory Committee Grant (\$3,815); 33.33% grant share \$1,271
- 2016 Integrating Computational Design and Digital Fabrication Technology** Co-PI with Nick Senske
ISU Miller Faculty Fellowship (\$12,380); 50% grant share \$6,190
- 2015 LSU Tiger Athletic Foundation College of Art + Design Outstanding Teaching Award** (\$1,000)
- 2015 LSU Teaching Enhancement Fund Grant for International Conference Travel**
ACSA Conference Toronto, Canada (\$700)
- 2015 LSU CSS Course Grant ARCH 7004 NERR Facility: Architecture of (Wet)Land Building** (\$10,000)
- 2014 LSU Teaching Enhancement Fund Grant for National Conference Travel** (\$500)
- 2014 CSS Course Grant ARCH 4993 ARCH 4993 Fabricating the Delta** (\$10,000)
- 2014 CSS Course Grant ARCH 7004 Losing Ground: Methods for Leeville** (\$5,000)

Internal Grants, Contracts and Fees for Extension / Professional Practice / Engagement

- 2017 Cyborg Sessions: Women in Robotics Workshop** Co-PI with Leslie Forehand, Nick Senske ISU Women and Diversity Grant (now ISU Inclusion Initiatives Grant Program) (\$5,000) 33.33% grant share \$1,650
- 2016 Emerging Designer Series: Towards Gender Equality in Public Design Lectures** Co-PI with Leslie Forehand, James Spiller, Betsy Barnhart. ISU Women and Diversity Grant (Inclusion Initiatives Grant Program) (\$5,000) 25% grant share \$1,250

- 2016 ISU Fieldstead Outreach Studio Grant**
PI - Fabricating Potentials: Pavilion for 80/35 Music Festival (\$5,000)

External Grants, Contracts and Fees for Extension / Professional Practice / Engagement

- 2016 ISU OPN Architects Studio Funding DSN S 546**
PI - Fabricating Potentials: Pavilion for 80/35 Music Festival (\$15,000)
- 2016 ISU Urbandale Park Pavilion Design/Build Studio Funding**
Co-PI with Rob Whitehead (\$70,000) 50% grant share \$35,000

External Invited Conference Keynotes and College / Department Public Lectures Series

- 2022 Georgia Tech Department of Architecture Lecture Series**
Symposium: Making With
- 2022 2022 SIGraDi Conference: Critical Appropriations** ***Online due to COVID-19*
A Carrier Bag of Tools for Computational Feminism
- 2020 Kennesaw State University Department of Architecture Lecture Series** ***Online due to COVID-19*
Making With: ISU Computation + Construction Lab
- 2020 Homing the Machine Symposium** The Ohio State University Knowlton School of Architecture
Symposium: Making With
- 2020 Constructing Textiles Workshop**
Virtual Frictions Digital to Physical | Physical to Digital Symposium at Louisiana State University
- 2020 Moving Towards Gender Equity in Architecture Panel**
Center for American Architecture and Design at University of Texas-Austin School of Architecture
- 2019 University of Utah Department of Architecture Lecture Series**
Both/And: Computation + Construction
- 2018 Rhode Island School of Design Department of Architecture Lecture Series**
Both/And: Computation + Construction
- 2013 City of Water: Architecture, Infrastructure, and the Floods of Phnom Penh**
University of Houston School of Architecture, Invited Lecturer. Houston, TX.

External Invited Professional Organizations Lectures and Presentations

- 2020 SOM Research & Innovation Community Talks Series** Shelby Doyle
SOM's Computer Group: Narratives of women in early architectural computing
- 2020 Iowa Women in Architecture Talk** Shelby Doyle
ISU Computation & Construction Lab
- 2019 DesignNXTWeek Symposium** Shelby Doyle
"Innovation is the Answer, but What is the Question?" invitation to participate in TVS Design symposium
- 2018 Introduction to Ceramic 3D Printing** Shelby Doyle and Erin Hunt
presented at the AIA Iowa 2018 Fall Convention: Movement. Selected presentation.
- 2017 Computation as a Catalyst to Gender Parity in Architecture** Shelby Doyle, Leslie Forehand, and Nick Senske
presented at the AIA Iowa 2017 Fall Convention: Cohesion. Selected presentation.

- 2017 **ISU Computation + Construction Lab** Shelby Doyle, Leslie Forehand, and Nick Senske presented at the AIA Iowa Spring 2017 Conference: Resilience. Invited Presentation .
- 2014 **Losing Ground: Methods for Leeville, Engaging Students in Coastal Research**
LSU Sea Grant Marine Extension Quarterly Meeting Invited Presenter. Baton Rouge, LA.
- 2013 **Our City Festival and the Urban Lab Phnom Penh**
Seasons of Cambodia, Living Arts City Colloquium, Invited Participant + Lecturer. New York, NY.
- 2013 **City of Water: Architecture, Infrastructure, and the Floods of Phnom Penh**
University of Louisiana Coastal Sustainability Studio, Invited Lecturer. Baton Rouge, LA.
- 2013 **Urban Lab and Smart City Workshop Phnom Penh**
Smart City: The Next Generation Focus South-East Asia, Invited Participant. Berlin, Germany.
- 2013 **City of Water: Architecture, Infrastructure, and the Floods of Phnom Penh**
Parsons University, School of Constructed Environments, Invited Course Lecture. New York, NY.
- 2013 **City of Water: Architecture, Infrastructure, and the Floods of Phnom Penh**
University of Hawai'i at Manoa School of Architecture, Invited Lecturer. Honolulu, HI.
- 2013 **City of Water: Architecture, Infrastructure, and the Floods of Phnom Penh**
Radio Interview Khmer Voice of America Television. Phnom Penh, Cambodia.
- 2012 **Creatives on Cambodia's Rivers: Riverscapes in Flux**, Invited Panelist. Phnom Penh, Cambodia.
- 2012 **Our City Festival Urban Forum**, Invited Panelist. Phnom Penh, Cambodia.
- 2012 **Phnom Penh Post Interview** "Examining Phnom Penh's Flood-Prone Architecture"
- 2012 **Water + The City Symposium** Invited Lecturer. Phnom Penh, Cambodia.
- 2012 **Summary of Cambodia Fulbright Research**
Fulbright Southeast Asia Regional Conference, Presenter. Hanoi, Vietnam.
- 2012 **Summary of Cambodia Fulbright Research**
Southeast Asia and World History Symposium, Presenter. Siem Reap, Cambodia.

External Invited Course Lectures

- 2022 **Harvard Graduate School of Design**, ISU Computation & Construction Lab, Nathan King
- 2022 **University of Toronto**, ISU Computation & Construction Lab, Maria Yablonina
- 2022 **University of New Mexico**, Computational Feminism, Nora Wendl
- 2022 **California College of the Arts** Architectural Ceramics, Adam Marcus
- 2020 **Center for Design Research at Virginia Tech**, ISU Computation & Construction Lab, Nathan King
- 2020 **University of Arkansas**, Hi Tech, | Lo-Tech Computing, Emily Baker
- 2020 **National University of Singapore**, Urban ASEAN: The Changing Southeast Asian City, Justin Stern

Internal Invited Lectures and Presentations

- 2018 ISU Computation + Construction Lab** Shelby Doyle, Leslie Forehand, and Nick Senske
Presented in Design 102 Spring Lecture Series. Invited by DSN 102 coordinator.
- 2018 Computation as a Tool of Gender Parity** Shelby Doyle, Leslie Forehand, and Nick Senske
Presented in ISU Women and Gender Studies (WGS) Lecture Series. Invited by WGS coordinator.
- 2017 Integrating Computational Design and Digital Fabrication Technology** Shelby Doyle and Nick Senske
Poster presentation for Miller Faculty Fellowship Luncheon. Invited by ISU Center for Excellence in Learning and Teaching
- 2017 ISU Computation + Construction Lab** Shelby Doyle, Leslie Forehand, and Nick Senske
Presented in Design 102 Fall Lecture Series. Invited by DSN 102 coordinator.
- 2017 ISU Computation + Construction Lab** Shelby Doyle, Leslie Forehand, and Nick Senske
Presented in Design 102 Spring Lecture Series. Invited by DSN 102 coordinator.
- 2017 ISU Computation + Construction Lab** Shelby Doyle and Nick Senske
Department of Architecture Advisory Council. Invited by Department Chair.
- 2016 ISU Computation + Construction Lab** Shelby Doyle and Nick Senske
Department of Architecture Advisory Council. Invited by Department Chair.

Conference Presentations – Peer Reviewed Full Paper or Abstracts

- 2020 Pedagogies of Digital Technology Panel** “Creative Achievement Award: ISU Computation & Construction Lab” 108th ACSA Annual Meeting OPEN: Reinvented Annual Meeting **Online due to COVID-19
- 2020 Gender Matters. Beyond Equity Organized by The Plan Journal Panel** “Women’s Work: Attributing Future Histories of the Digital in Architecture” 108th ACSA Annual Meeting OPEN: Reinvented Annual Meeting **Cancelled due to COVID-19
- 2019 Computational Feminism: Attributing Future Histories of the Digital in Architecture** Shelby Doyle
2019 IAWA Symposium: Expanding the ‘Archive’. Latent Connections: Evidence and Speculation at the The International Archive of Women in Architecture Center School of Architecture + Design at Virginia Tech 20-22 March, 2019 Blacksburg, VA
- 2019 Gender Trajectories: A Discussion of Architecture and Craft** Shelby Doyle and Olivia Valentine
Kentucky Chapter of The Feminist Art Project Symposium: Materializing Resistance: Gender, Politics, and Craft. Lexington, Kentucky. 12-13 April, 2019.
- 2019 Practicing Design Scholarship: Situate Reflect Disseminate** Shelby Doyle
Journal of Architectural Education Panel at the 107th Annual Meeting of the Associate for Collegiate Schools of Architecture BLACK BOX: Articulating Architecture’s Core in the Post-Digital Era. Pittsburgh, PA. 27-19 March, 2019.
- 2018 Cyborg Sessions: A Case Study for Gender Equity in Technology** Shelby Doyle on behalf of Leslie Forehand, Erin Hunt, Nick Loughrey, Sarah Schneider, Nick Senske. Full paper presentation at The Association for Computer-Aided Architectural Design Research in Asia. 16-19 May, 2018. Beijing, China.
- 2017 Festival as Site: Architectural Fragments** Shelby Doyle
Full paper presentation at Architectural Humanities Research Association 14th Annual International Conference: Architecture, Festival, and the City. 16-18 Nov. 2017. Birmingham, United Kingdom.

- 2017 Computational Feminism: Searching for Cyborgs** Shelby Doyle, Leslie Forehand, and Nick Senske
Full paper presentation at Disciplines and Disruption: 36th Annual Conference of the Association for Computer Aided Design in Architecture. 1-4 Nov. 2017, Boston, MA.
- 2017 IM_RU** Shelby Doyle and Erin Hunt
Project presentation main stage at Disciplines and Disruption: 36th Annual Conference of the Association for Computer Aided Design in Architecture. 1-4 Nov. 2017, Boston, MA.
- 2017 Losing Ground: Urban Sacrifice Zones in the Mississippi River Basin** Shelby Doyle
Full paper presentation and panel discussion at the Association of Annual Meeting of the American Association of Geographers. 5-9 Apr. 2017. Boston, MA.
- 2017 The Lore of Building Experience: Deconstructing Design-Build** Shelby Doyle and Rob Whitehead
Full paper presentation at Begin W/ Why: Ethics and Values in Beginning Design: 33rd National Conference of the Beginning Design Student. 9-11 Mar. 2017. Salt Lake City, UT.
- 2017 Unplugging Inequality: Computational Futures for Architecture** Shelby Doyle and Nick Senske
Full paper presentation at Begin W/ Why: Ethics and Values in Beginning Design: 33rd National Conference of the Beginning Design Student. 9-11 Mar. 2017. Salt Lake City, UT.
- 2017 City of Water: Politics of Infrastructure in Phnom Penh** Shelby Doyle
Full paper presentation at 2nd annual Southeast Asia Architecture Research Collaborative Symposium. 5-7 Jan. 2017. Singapore.
- 2016 From Design-Build to Computation and Construction** Shelby Doyle
Full paper presentation during Working Out: Thinking While Building II: Issues in Design Build Web Conference. 10 Dec 2016. Online.
- 2016 Exploring Learning Objectives for Digital Design in Architectural Education** Shelby Doyle and Nick Senske. Full paper presentation at Architectural Research Addressing Societal Challenges EAAE ARCC 10th International Conference. 15-18 Jun. 2016, Lisbon, Portugal.
- 2016 Introducing Digital Soft Skills: Bridging the Gaps in Architectural Education** Shelby Doyle and Nick Senske. Full paper presentation at Architectural Research Addressing Societal Challenges EAAE ARCC 10th International Conference. 15-18 Jun. 2016, Lisbon, Portugal.
- 2016 Thinking + Making: Digital Craft as Social Project** Shelby Doyle
Full paper presentation at Architectural Research Addressing Societal Challenges EAAE ARCC 10th International Conference. 15-18 Jun. 2016, Lisbon, Portugal.
- 2016 Between Design and Digital: Bridging the Gaps in Architectural Education** Shelby Doyle and Nick Senske. Full paper presentation at Research Based Education: Proceedings of the 2016 Association of Architectural Educators, 7-9 Apr. 2016, London, UK.
- 2016 Fabricating Architecture: Digital Making as Feminist Practice** Shelby Doyle and Leslie Forehand
Full paper presentation at Architectural Humanities Research Association 13th Annual International Conference: Architecture + Feminisms. 17-19 Nov. 2017. Stockholm, Sweden.
- 2016 Fabricating Potentials: Constructing Social Engagement** Shelby Doyle
Full paper presentation at Scholarship of Social Engagement Symposium. 20-21 Oct. 2016. Lawrence, KS.
- 2016 Bringing Bauhaus Back: Digital Architecture + Contemporary Craft** Shelby Doyle
Full paper presentation at Association of Collegiate Schools of Architecture International Conference. Cross-Americas: Probing Disglobal Networks. 29 Jun.- 1 Jul. 2016, Santiago, Chile.

- 2016 Hydrophobic Paper Architecture: Studies in the Sustainability of Impermanent Structures** Shelby Doyle and Leslie Forehand. Full paper presentation at Association of Collegiate Schools of Architecture International Conference. International Conference. Cross-Americas: Probing Disglobal Networks. 29 Jun - 1 Jul, 2016, Santiago, Chile.
- 2014 Mekong Edge: Mediating Phnom Penh** Shelby Doyle
Full paper presentation at Architecture Media Politics Society The Mediated City Conference. 2-4 Oct. 2014. Los Angeles, CA.
- 2015 Losing Ground: Urban Sacrifice Zones in the Mississippi River Basin** Shelby Doyle
Full paper presentation at the Association of Collegiate Schools of Architecture 103rd Annual Meeting: The Expanding Periphery and the Migrating Center. 19-21 Mar. 2015. Toronto, Ontario.
- 2015 Learning from Las Vegas, in Phnom Penh** Shelby Doyle
Full paper presentation at the Association of Collegiate Schools of Architecture 103rd Annual Meeting: The Expanding Periphery and the Migrating Center. 19-21 Mar. 2015. Toronto, Ontario.
- 2015 Fabricating the Delta: Introducing Interdisciplinary Design Methods** Shelby Doyle
Full paper presentation at the 31st National Conference on the Beginning Design Student Conference Proceedings: Engaging Media. 26-28 Feb. 2015. Houston, TX.
- 2015 Site Matters: Introduction to Context** Shelby Doyle
TinyTED Presentation at the 31st National Conference on the Beginning Design Student Conference Proceedings: Engaging Media. 26-28 Feb. 2015. Houston, TX.
- 2014 Critical Travel and Work- Mekong: Ho Chi Minh to Phnom Penh** Shelby Doyle and Bill Truitt
Full paper presentation at the Association of Collegiate Schools of Architecture 102nd Annual Meeting: Globalizing Architecture / Flows and Disruptions. 10-12 Apr. 2014, Miami Beach, FL.
- 2014 Edges: Introduction to Analog and Digital Fabrication** Shelby Doyle
Full paper presentation at the 30th National Conference on the Beginning Design Student. 3-5 Apr. 2014, Chicago, IL.
- 2014 The Politics of Water: Architecture, Infrastructure and the Floods of Phnom Penh** Shelby Doyle
Full paper presentation to The Environmental Design Research Association Building With Change Conference 28-31 May 2014, New Orleans, LA.
- 2014 Lost Names of Louisiana + Losing Ground: Methods for Leeville**
Poster presentation at the State of the Coast Conference. 25 Oct. 2014. New Orleans, LA.
- 2013 City of Water: Architecture, Urbanism, and the Floods of Phnom Penh** Shelby Doyle
Full paper presentation at the Association of Collegiate Schools of Architecture Fall Conference: Subtropical Cities / Design Interventions for Changing Climates. 17-19 Oct. 2013. Ft. Lauderdale, FL. .

Invited Article – Editor Reviewed

- 2018 Creating Connection: Computation and Construction** Shelby Doyle
Connection: The Architecture and Design Journal of the Young Architects Forum, 16.01, (pp. 64-69).

Editor Conference Proceedings

- 2021 Distributed Proximities: Proceedings of the 2020 Association of Computer Aided Design in Architecture Conference** Ago, V., del Campo, M., Doyle, S., Marcus, A., Slocum, B., and Yablonina, M.,(Eds.) Volume 1 ISBN 978-0578952130 and Volume 2 ISBN 978-0578952536
- 2017 Poetics & Pragmatism: Proceedings of the Building Technology Educators' Society**
Leslie, T., Doyle, S., and Whitehead, R. (Eds.) Iowa State University, Ames, IA. ISBN 978-0-989-59802-6

Peer-Reviewed Exhibitions

- 2019 Melting: Augmenting Concrete Columns with Water Soluble 3D Printed Formwork**
Shelby Doyle and Erin Hunt
Ubiquity and Autonomy: 39th Annual Conference of the Association for Computer Aided Design in Architecture. 24-26 Oct 2019, Austin, TX.
- 2018 WAFT** Shelby Doyle, Erin Hunt, Kelly Devitt
RECALIBRATION: on imprecision and infidelity 37th Annual Conference of the Association for Computer Aided Design in Architecture. ACADIA 16- 20 October 2018, Mexico City, Mexico.
- 2017 IM_RU** Shelby Doyle and Erin Hunt
Disciplines and Disruption: Projects Catalog of the 36th Annual Conference of the Association for Computer Aided Design in Architecture. ACADIA 1-4 Nov 2017, Boston, MA.

Invited Exhibitions

- 2018 Both/And: Fabricating Potentials** Rhode Island School of Design School of Architecture
- 2016 ISU Disrupt/Displace #NoDAPL** Venice Biennale Sessions Shelby Doyle and Leslie Forehand + 50 students
- 2016 American Wild: A Memorial** Shelby Doyle, Justine Holzman, Forbes Lipschitz, Halina Steiner in the Van Alen Institute Memorials for the Future Competition exhibited at the Kennedy Center for the Performing Arts curated by the Van Alen Institute, Washington, DC

Curated Exhibitions

- 2017 Cyborg Sessions: Women in Robotics** Shelby Doyle, Leslie Forehand, and Nick Senske
www.design.iastate.edu/news/2017/10/cyborg-sessions. Accessed 14 Dec 2017.
- 2013 City of Water: Architecture, Infrastructure, and the Floods of Phnom Penh** Shelby Doyle and Bill Truitt
University of Houston School of Architecture, Pan Asia Mekong Exhibit, Sept 2013. Houston, TX
- 2013 Water, Politics + Art: Contexts For Architecture + Urbanism In Phnom Penh** Shelby Doyle
Parsons University, School of Constructed Environments Exhibit, Apr 2013. New York, NY

Competitions

- 2016 American Wild: A Memorial** Shelby Doyle, Justine Holzman, Forbes Lipschitz, Halina Steiner
Finalist. Sponsored by the National Park Service (NPS), the National Capital Planning Commission (NCPC), and Van Alen Institute.
- 2016 Parting the Curtain: Fabricating a Bespoke Domesticity** Shelby Doyle and Leslie Forehand
Finalist. Branch Technology 3D Printed House Competition.

Conference Panel Chair

- 2022 Panel Session Chair** Association for Computer Aided Design in Architecture (invited)
- 2021 Panel Session Chair** Association for Computer Aided Design in Architecture (invited)
- 2019 Panel Session Chair** BTES Conference: The Lore, Lessons, and Limits of Building Experience: Challenging Design-Build as Educational Panacea for Architects with Rob Whitehead (peer reviewed)
- 2019 Panel Session Chair** BTES Conference: Computational Design + Analysis (invited)
- 2018 Panel Session Chair: The Next Digital Turn: Identifying Inequalities** Shelby Doyle and Nick

Senske. Association Collegiate Schools of Architecture 106th Annual Meeting: The Ethical Imperative
15-17 Mar 2018. Denver, CO (peer reviewed)

2015 **Panel Session Moderator** National Conference of the Beginning Design Student (invited)

Invited Podcasts + Interviews

2022 **Dream Worlds: Three experts discuss Midjourney's promise and pitfalls**

Interview by Jack Hardy for Architect's Newspaper

<https://www.archpaper.com/2022/09/three-experts-discuss-midjourneys-promise-pitfalls/>

2022 **Voices in Design Computing Episode 4**

Interview by Heather Ligler

<https://sites.psu.edu/voicesindesigncomputing/2022/03/09/episode-004-shelby-doyle/>

2022 **International Women's Day Interview**

Interview by ISU Datum No.13 Collective editors

https://issuu.com/datum_isu/docs/datum_no.13_collective_final_pages

2021 **Authorial Asymmetries: computational feminism, access, and cooperation in digital knowledge creation in Gradient Journal Feed #2**

Interview by Kathy Velikov: gradient-journal.net/articles/authorial-asymmetries

2020 **Student Innovation Center Podcast** Robots! with Shelby Doyle

sictr.iastate.edu/2020/01/17/innovation-friday-podcast-shelby-doyle-robotics-and-design

2019 **Proving Ground Prove It Podcast** Episode 7: Back to School with Shelby Doyle

www.youtube.com/watch?v=JLyjb0UiNrc&t=4218s

Events Organized

2020 **Co-Organizer - Decategorization Panel** Shelby Doyle and Orit Halpern

Canadian Centre for Architecture "Pedagogies in the Digital - Why do we need an intersectional architecture now?"

2020 **Co-Chair - Association for Computer Aided Design in Architecture Conference**

Shelby Doyle, Viola Ago, Matias del Campo, Adam Marcus, Brian Slocum, Maria Yablonina
(26-31 Oct. 2020) **online due to COVID-19*

2018 **Co-Organizer - Adaptive Facades Symposium** Shelby Doyle, Ulrike Passe, Deborah Hauptmann

19 Apr. 2018. Ames, IA.

2017 **Co-Organizer - Computational Foundations Colloquium** Shelby Doyle and Nick Senske

17-19 Apr. 2017. Ames, IA.

2017 **Co-Organizer- Building Technology Educator Society Conference**

Shelby Doyle, Tom Leslie, Rob Whitehead Poetics and Pragmatics. 6-9 Jun. 2017. Des Moines, IA.

Products in Other Media (Videos, Software Applications, Websites, Blogs, etc.)

2017- ISU Computation + Construction Lab Instagram

III. TEACHING

Grants and Awards for Teaching

\$51,195 in funding. For details please see CV Section II Scholarship | [Page 6 LINK](#)

Design/Build Studios

Sp'2022 DSN S 546 Digital Clay 6 cr, (credits) 12 (students)

Elective interdisciplinary design/build studio using digital and analogue clay techniques to produce a public exhibition at the Student Innovation Center.

Sp' 2021 DSN S 546 Robotic 3D Printing + Casting 6 cr, 12

Elective interdisciplinary design/build studio constructing and casting concrete using both low-tech and high-tech methods and culminating in an installation.

Sp' 2019 DSN S 546 Constructing Textiles: Computation + Soft form works with Olivia Valentine, 6 cr, 22

Elective interdisciplinary design/build studio constructing and casting textiles, evaluating these computationally and then culminating in an installation at Mainframe Studios in Des Moines, IA.

Sp' 2018 DSN S 546 Bluestem Interdisciplinary Design-Build Studio for Iowa Arboretum, 6 cr, 15

Elective interdisciplinary design/build studio that constructed a permanent project for the Iowa Arboretum in Madrid, IA.

Su' 2017 ARCH 581 Penumbra Design-Build for Des Moines Social Club Rooftop, 5 cr, 12

Required design-build studio in the MArch sequence constructed permanent shade structure for the Des Moines Social Club, an arts and music non-profit.

Sp' 2017 DSN S 546 IM_RU Interdisciplinary Design-Build Studio, 6 cr, 15

Elective interdisciplinary design/build studio that constructed a light-responsive pavilion for the Flyover Fashion Festival in Iowa City, IA.

Sp' 2017 ARCH 490 Independent Fabrication Studio Conversion Van Rebuild, 6 cr, 2

Elective independent study studio to reconsidered nomadic architecture through the re-construction of a van.

Su' 2016 ARCH 581 Dunlap Park Shelter Design-Build Studio with Rob Whitehead, 5 cr, 8

Required design/build studio in the MArch sequence constructed permanent pavilion for the Dunlap Park Arboretum.

Sp' 2016 DSN S 546 80/35 Pavilion Interdisciplinary Design-Build for 80/35 Music Festival, 6 cr, 16

Elective interdisciplinary design/build studio that constructed a light-responsive pavilion for the 80/35 Music Festival in Des Moines, IA.

(Digital) Fabrication Studios + Seminars

Fa' 2021 ARCH 433 Introduction to Digital Fabrication, 3 cr, 24

Elective seminar developed to explore the introduction of digital fabrication tools available at ISU.

Su' 2021 ARCH 507 / DSN S 546 Design in Detail: Fabricating Saylorville Lake, 5/6 cr, 8

Required studio in the MArch sequence that explored site and architecture through digital fabrication.

Sp' 2021 ARCH 433 Introduction to Digital Fabrication, 3 cr, 19

Elective seminar developed to explore the introduction of digital fabrication tools available at ISU.

Fa' 2020 ARCH 528A Equity in Computing, 3 cr, 16

Elective seminar developed to explore tools for equity and biases in architectural software and hardware.

Sp' 2020 ARCH 438X Architectural Robotics, 3 cr, 22

Elective seminar developed to explore the introduction of architectural robotics. (X = approved ISU experimental course)

Fa' 2019 ARCH 433 Introduction to Digital Fabrication, 3 cr, 25

Elective seminar developed to explore the introduction of digital fabrication tools available at ISU.

Sp' 2019 ARCH 433 Introduction to Digital Fabrication, 3 cr, 21
Elective seminar developed to explore the introduction of digital fabrication tools available at ISU.

Fa' 2018 ARCH 433 Introduction to Digital Fabrication, 3 cr, 23
Elective seminar developed to explore the introduction of digital fabrication tools available at ISU.

Su' 2018 ARCH 507, Design in Detail: Fabricating Saylorville Lake, 5 cr, 10
Required studio in the MArch sequence that explored site and architecture through digital fabrication.

Sp' 2018 ARCH 433 + ArtIS 482/582, Seminar in Fabricating Tools: Computation + Weaving, 3 cr, 14
Elective seminar co-taught with Olivia Valentine (Art & Visual Culture) exploring the digital fabrication of weaving tools.

Fa' 2017 ARCH 433 Introduction to Digital Fabrication, 3 cr, 18
Elective seminar developed to explore the introduction of digital fabrication tools available at ISU.

Fa' 2016 ARCH 436 + 528 Venice Biennale Sessions Seminar, with Leslie Forehand, 5 cr, 40
Elective seminar culminating in travel to Venice and participation in a workshop and symposium.

Fa' 2016 HON 321M (+Design) Honors Course with Nick Senske and Leslie Forehand, 1 cr, 14
Elective honors seminar presenting design's value at a university of Science + Technology.

Sp' 2016 ARCH 433 Making MIMAL: Fabricating the Mississippi River Basin, 3 cr, 14
Elective seminar that explores of the 2008 Iowa Floods through digital fabrication, models, mapping, and exhibition.

Fa' 2015 ARCH 528 Introduction to Analog + Digital Fabrication Seminar, 3 cr, 10
Elective seminar developed to explore the introduction of digital fabrication tools available at ISU.

Independent Studies in Digital Media / Fabrication

Sp '2022 ARCH 490A Independent Seminar - Textiles 6cr. 2
Independent studio to develop relationships between textile construction and theoretical discourse.

Fa '2021 ARCH 490A Independent Studio - 3D Printing Housing, 6cr. 1
Independent studio to 3d print housing.

Fa '2021 ARCH 590A Independent Seminar - 3D Printing Clay, 3 cr. 1
Independent studio to 3d print housing.

Fa '2021 ARCH 490A Independent Seminar - Textiles 3cr. 2
Independent elective to develop relationships between textile construction and theoretical discourse.

Fa' 2020 ARCH 490H Independent Fabrication Seminar - Robotic Clay Formwork, 3 cr, 1
Independent elective to construct a clay 3D printing end effector for the KUKA robotic arms

Fa' 2019 ARCH 490A Independent Digital Media Seminar Integrating Computation into Professional Practice, 3 cr, 1
Independent elective to develop computational workflows to apply to an ongoing professional internship.

Fa' 2019 ARCH 490H Independent Fabrication Seminar - Drawing Machine, 3 cr, 1
Independent elective to construct a drawing machine.

Fa' 2019 ARCH 590A Independent Digital Media Seminar Integrating Computation into Professional Practice, 3 cr, 1
Independent elective to develop computational workflows to apply to an ongoing professional internship.

Sp' 2019 ARCH 490A Independent Digital Media Seminar - Hololens, 3 cr, 1
Independent elective to develop workflows for augmented reality.

Sp' 2018 ARCH 490A Independent Fabrication Seminar - DrawBots, 3 cr, 1
Independent elective to construct a polargraph and produce a series of drawings.

Sp' 2018 ARCH 490H Independent Fabrication Seminar - Fabricating Nature, 3 cr, 1
Independent honors elective to digitally fabricate a chair as a means for theoretical critique of sustainability narratives.

Design Studios: Water, Climate, + Politics

Fa' 2021 ARCH 401 Buildings that Make Buildings: Additive Manufacturing of ADUs, 6 cr, 14
Required 4th Year BArch studio sited in Des Moines, IA focusing on the design of a factory for 3D printing Accessory Dwelling Units.

Fa' 2020 ARCH 401 Making With: Architecture of Robotic Construction, 6 cr, 17
Required 4th Year BArch studio sited in Des Moines, IA focusing on the sympoietic relationship between people, robots, and the environment.

Fa' 2019 ARCH 401 WPA 2.0: Architecture and the Green New Deal, 6 cr, 17
Required 4th Year BArch studio sited in Des Moines, IA with travel to Denver, CO focusing on the design of a high-speed passenger rail station.

Fa' 2018 ARCH 401 This Is Not Wilderness: Architecture and The Colorado River, 6 cr, 16
Required 4th Year BArch studio sited in Lake Granby, Colorado at the head of the Colorado River Basin and exploring the architecture of American climate refugees.

Fa' 2017 ARCH 401 Riparian Borders: Architecture of the US/Mexico Border, 6 cr, 13
Required 4th Year BArch studio sited in El Paso, Texas on the US/Mexico border and considering a new headquarters for the International Water Boundary Commission on the Rio Grande River.

Fa' 2016 ARCH 401 American Wild: Architecture of Climate Change, 6 cr, 14
Required 4th Year BArch sited in Badlands South Dakota. By harnessing the actions of water and erosion students propose an architecture of research, preservation, and habitation (a hybrid of lab/memorial/housing).

Fa' 2015 ARCH 301 3rd Year Undergraduate Studio, 6 cr, 18
Required 3rd Year BArch course that examines relationships between site and architecture. Projects included a Lichen Research Outpost and a Bike Repair Shop + Boat House, both located along the Des Moines River.

Hosted Course Lectures + Workshops

Fa' 2021 ARCH 401 ConE 340 Students + Cliff Plymessenger Workshop
30 ConE students working in collaboration with 14 ARCH 401 students on construction detail design for 3D printing

Fa' 2019 ARCH 401 ConE 340 Students + Cliff Plymessenger Workshop
30 ConE students working in collaboration with 17 ARCH 401 students on construction detail design

Sp' 2019 DSN S 546 Andrew Kudless Casting Workshop
Visiting scholar Andrew Kudless introduced students to his Kangaroo to fabric casting workflows to 22 students

Sp' 2019 DSN S 546 Fologram Augmented Reality Workshop
Visiting technologist Gwyllm Jahn introduced students to Grasshopper and Fologram workflows to 22 students

Sp' 2019 DSN S 546 ConE 340 Students + Cliff Plymessenger Workshop
30 ConE students working in collaboration with DSN S 546 students on construction detail design for their design-build

Fa' 2018 ARCH 401 ConE 340 Students + Cliff Plymessenger Workshop
30 ConE students working in collaboration with 17 ARCH 401 students on construction detail design

Sp' 2018 DSN S 546 ConE 340 Students + Cliff Plymessenger Workshop
30 ConE students working in collaboration with DSN S 546 students on construction detail design for their design-build

Sp' 2018 ARCH 433 + ArtIS 482/582 Textile and Visiting Lecturers
Hosted Emily Hemant and Kim Mirus for in course workshops and public lectures

Fa' 2018 ARCH 401 ConE 340 Students + Cliff Plymessenger Workshop
30 ConE students working in collaboration with 17 ARCH 401 students on construction detail design

Student Awards

- 2022 AIA Central States Emerging Professional - Built & Unbuilt Honor Award**
Cube3 Yahia Mohamed and Garrett Stirling, developed in ARCH 401 studio
- 2020 University Honors Grant** Faculty Advisor to Jacob Gasper
\$750 grant for "Architectural Clay Formworks" in collaboration with Cyle King conducted at the Student Innovation Center (SIC) in the Architectural Robotics Lab (ARL).
- 2020 DLR Group Prize** ARCH 401 winners Mae Murphy and Cameron Wahlberg
- 2018 DLR Group Prize** ARCH 401 winners Emma Henry and Hannah Underwood.
- 2017 DLR Group Prize** ARCH 401 winners Sun Minyang and Muran Yang.
\$1,500 to the winner (or winning team) + two internships for the winners in a DLR Group office. Fourth-year student project prize for the student project best exhibiting a rigorous examination of how buildings participate sustainably in socio-political and environmental systems.
- 2016 Student Focus Grant** Faculty Advisor to Rahul Attraya and Erin Hunt
\$500 for the construction of delta clay printer, included in student focus grant exhibition

Curricular Development

- 2020 Theory Seminar**
ARCH 528A Equity in Computing
Developed a new architectural theory seminar identifying biases in architectural software and hardware and questioning how these biases frame and impact the design and production of architecture
- 2019 Robotics Seminar**
ARCH 438X Introduction to Architectural Robotics; 3 credits
Developed a new architectural robotics seminar to introduce robotics. Course is open to all College of Design majors. (X indicates approved ISU experimental course)
- 2016- Design/Build Studios**
Interdisciplinary DSN S 546 Studio; 6 credits
ARCH 581 Service Learning; 5 credits
Developed a new digital fabrication / design-build studio with a focus on outreach and engagement in Iowa with the use of new tools and technologies. Course is open to all College of Design majors.
- 2015- Digital Fabrication Seminars**
ARCH 433; 3 credits
Developed a new digital fabrication seminar to include the tools of the ISU Computation & Construction Lab. Course is open to all College of Design majors.
- 2016- Design Studios: Water, Climate, + Politics**
ARCH 401 Studio; 6 credits
Developed a section of the ARCH 401 required studio sequence which explores relationships between architecture, water, and politics

Undergraduate Advising

- 2016-2018** Advising as per departmental requirements

Graduate Advising - Major Professor

- 2022 Yanjui Bai, Mater of Science in Architecture Candidate, Title Forthcoming**
Committee Members: Ingrid Llligren, Pete Evans, Nick Senske

- 2022 Paavan Joshi, Master of Science in Architecture Candidate, Jaali 3D Printed Clay**
Committee Members: Cameron Campbell and Lee Cagley
- 2021 Gautam Pradeep, Master of Science in Architecture, Responsive Choreography**
Committee Members: Ulrike Passe and Alice Alipour
- 2021 Obhishek Mandal, Master of Science in Architecture, Peripheral Mechanisms**
Committee Members: Carl Rogers and Sharon Wohl

Graduate Advising - Graduate Committee Member

- 2021 Tarun Bhatia, Master of Science in Architecture, A demonstration of actualizing complex adaptive systems on the ground** Major Professor: Sharon Wohl Committee Member: Peter Evans

Invited Juries

- 2022 Invited Juror** Final Reviews, Washington University in St. Louis
- 2022 Invited Juror** OPN Architects' Innovative Design Competition **
- 2022 Invited Juror** Final Reviews, University of Virginia
- 2022 Invited Juror** Final Reviews M-RAD, University of Pennsylvania
- 2022 Invited Juror** Mid-Review, Georgia Tech **
- 2021 Invited Juror** Final Reviews, McGill University
- 2021 Invited Juror** Final Reviews, Pratt **
- 2021 Invited Juror** Final Reviews, University of Illinois Urbana Champaign
- 2021 Invited Juror** Mid-Reviews, South Dakota State University
- 2021 Invited Juror** Mid-Reviews, Texas Tech - Lubbock **
- 2021 Invited Juror** Mid-Review, Carnegie Mellon University **
- 2021 Invited Juror** Thesis Reviews, Kennesaw State **
- 2020 Invited Juror** Final Reviews, Harvard Graduate School of Design MAP+S **
- 2020 Invited Juror** Final Reviews, Lawrence Technical University **
- 2020 Invited Juror** Final Reviews, University of Buffalo **
- 2020 Invited Juror** Final Reviews, University of Toronto **
- 2020 Invited Juror** Final Reviews, University of Houston **
- 2020 Invited Juror** Final Reviews, Texas Tech University - El Paso **
- 2020 Invited Juror** Final Reviews, Sci Arc **
- 2020 Invited Juror** Review, Cornell University **
- 2020 Invited Juror** Thesis Reviews, University of Michigan **
- 2020 Invited Juror** Final Reviews, University of Minnesota **
- 2020 Invited Juror** Final Reviews, Kansas State University**
- 2020 Invited Juror** University of Utah **
- 2020 Invited Juror** City College of New York **
- 2019 Invited Juror** MANKO Competition Jury, Kansas State University
- 2019 Invited Juror** Final Reviews, University of Colorado-Denver
- 2018 Invited Juror** Digital and Material Technologies Final Reviews, University of Michigan
- 2018 Invited Juror** Thesis Reviews, University of Nebraska-Lincoln
- 2017 Invited Juror** Final Reviews, Washington University in St. Louis
- 2017 Invited Juror** Final Reviews MArch / MS Computer Science, University of North Carolina-Charlotte

**Online

IV. RESEARCH / CREATIVE ACTIVITIES

Grants and Awards for Research / Creative Activities

\$723,095 in funding. For details please see CV Section II Scholarship | [Page 5 LINK](#)

Ongoing Research / Creative Activities

The following describes ongoing research / creative activities. The scholarship resulting from these projects can be found in CV Section II Scholarship | [Page 14 LINK](#)

ISU Computation & Construction Lab

The foundation of my research at ISU is the Computation + Construction Lab (CCL) an initiative I co-founded that works to connect developments in computation to the challenges of construction through teaching, research, publication, and exhibition. The central hypothesis of CCL, and my work, is that computation in architecture is a material, pedagogical, and social project; computation is both informed by and productive of architectural cultures.

Water Soluble Formwork

As concrete is the most widely used material in the world this work aims to reduce material use and labor in the production of complex concrete forms. It also explores the structural viability of off-the-shelf rebar to replace or supplement steel reinforcement for concrete, allowing for specific placement in complex forms and the reduction of both concrete and rebar material use.

3D Printed Reinforcement

Although there are many examples of 3D printed concrete in architecture, the integration of reinforcement remains a challenge for this construction method. It may be possible to print reinforcement in layers during concrete printing or to print a formwork and reinforcement simultaneously, but it is less clear which materials are suitable for this application and how they might perform. This research presents flexural test results for 3D printed tensile reinforcement in concrete as a means to develop structural baselines for future design applications.

Custom Concrete Texturing

Work in custom concrete texturing is related to the development of water-soluble formwork. This involves programming patterns and textures into the printed formwork that then are transferred to the surface of the resulting concrete cast when the form is dissolved.

Recycled 3D Print Aggregate

Grinding and recycling 3D print filament waste as a possible aggregate supplement or replacement for concrete. Future tests will integrate other forms of waste plastic.

Ceramic Tile 3D Printing

The research integrates traditional slump molding techniques and handmade glazes with computationally designed and 3D printed ceramic tiles and CNC milled molds to explore possibilities for architectural cladding.

Architectural Extrusions

Explorations of cut ceramic extrusions for application as architectural cladding. Originally developed during a Architectural Ceramics Workshop at Boston Terra Cotta as part of the Radical/Matter team.

Custom Nozzles for Clay + Concrete Robotic 3D Printing

This research explores the potential of custom 3D printed nozzles for use in ceramic 3D printing that create custom patterning through physical manipulation (rather than the manipulation of Gcode). Nozzles and workflows are being scaled up for use in concrete 3D printed with KUKA Industrial Robotic Arms to be integrated with the 3D printed reinforcement work described above.

Fabricating Water

Continuing work to create digital and physical models of architecture's relationship to water. Extension of my master's thesis Caspian Sea: Neft Dashlari: Architecture, Oil and Urbanism in the Trans-Caspian Union. Fulbright Fellowship to Cambodia, City of Water: Architecture, Infrastructure, and the Floods of a Phnom Penh, and Shifting Foundations exhibition at Louisiana State University Coastal Sustainability Studio.

Service Related to Research / Creative Activities

Invited Peer Reviewer

- 2023 **Article Reviewer** International Journal of Architectural Computing
- 2023 **Book Reviewer** Case Studies in Parametric Design (Taylor & Francis) Jeffrey Collins
- 2022 **Article Reviewer** Journal of Architectural Education
- 2022 **Book Proposal Reviewer** Architectural Digest
- 2022 **Abstract Reviewer** ACM Symposium on Computational Fabrication
- 2022 **Paper Reviewer** Association for Computer Aided Design in Architecture
- 2022 **Residency Reviewer** Experimental Clay Residency at University of California, Santa Barbara and University of New Mexico
- 2022 **Article Reviewer** Construction Robotics Journal
- 2021 **Paper Reviewer** Association for Computer Aided Design in Architecture
- 2021 **Article Reviewer** International Journal of Architectural Computing
- 2021 **Article Reviewer** Construction Robotics Journal
- 2020 **Abstract + Project Reviewer** Association for Computer Aided Design in Architecture
- 2020 **Article Reviewer** Construction Robotics Journal
- 2020 **Abstract Reviewer** Architectural Research Centers Consortium
- 2020 **Article Reviewer** International Journal of Architectural Computing
- 2020 **Book Reviewer** Situate, Manipulate, Fabricate (Taylor & Francis) Chad Schwartz
- 2019 **Article Reviewer** Journal of Architectural Education
- 2019 **Grant Reviewer** Innovative Faculty Research Grants for University of North Carolina - Charlotte
- 2019 **Abstract and Paper Reviewer** Building Technology Educator's Society
- 2018 **Abstract and Paper Reviewer** Building Technology Educator's Society
- 2017 **Project Reviewer** Haystack Architecture, Culture, and Spirituality Symposium
- 2017 **Abstract Reviewer** Building Technology Educator's Society
- 2016 **Paper Reviewer** Association Collegiate Schools of Architecture
- 2016 **Abstract Reviewer** National Conference of the Beginning Design Student
- 2016 **Abstract Reviewer** Design Research Society's International Conference
- 2016 **Paper Reviewer** Council of Educators in Landscape Architecture

Professional Organization Service

- 2023-2024** **President** Association for Computer Aided Design in Architecture (elected 1 year term)
- 2022-2025** **Board of Directors** Association for Collegiate Schools of Architecture (elected 3 year term)
Member, Education Committee
Planning Committee, Community College Convening June 2023
Member, Nominations Committee
Juror, Design / Build Awards
Juror, ACSA College of Distinguished Professors Annual Meeting Travel Grant for Emerging Faculty
Attendee, Annual Board Meeting August 2022
Attendee, Pathways ASCA Administrators Meeting November 2022
Attendee, Incommons ACSA111 Annual Meeting April 2023
- 2022-2024** **Board of Directors** Association for Computer Aided Design in Architecture (elected 2 year term)
Chair, Steering Committee
Co-Chair, Cultural History Project
Vice Communications Officer
Member, Diversity Committee
- 2020-2022** **Board of Directors** Association for Computer Aided Design in Architecture (elected 2 year term)
Member, Steering Committee
Member, Communications Committee
- 2018-2021** **Organizing Committee / ISU Liaison** AIA Iowa Conference. Ames, IA (invited)
- 2016-2018** **Board of Directors** Building Technology Educator's Society (elected 2 years)

V. EXTENSION / PROFESSIONAL PRACTICE / ENGAGEMENT

Grants and Awards to Support Extension / Professional Practice / Engagement

\$100,000 in funding. For details please see CV Section II Scholarship | [Page 6 LINK](#)

Projects

- 2020 **PPE Production** 2,000 face shields for Iowa Healthcare Workers (\$5,000 from Alliant Energy)
- 2019 **Mesophases** 1,000 SF temporary design installation for Mainframe Studios Des Moines, IA (\$5,000)
- 2018 **Bluestem** 1,000 SF permanent design installation for the Iowa Arboretum Madrid, IA (\$5,000)
- 2018 **ISU State Fair Pavilion Design** 500 SF temporary structure IM_RU 2.0 Des Moines, IA (\$5,000)
- 2018 **ISU President Wendy Wintersteen Installation** 80 Vases SEKI Collection Ames, IA (\$1,000)
- 2017 **Penumbra** 900 SF permanent shade structure for the Des Moines Social Club, Des Moines, IA (\$10,000)
- 2017 **IM_RU** 300 SF temporary structure for the Flyover Fashion Festival, Iowa City, IA (\$5,000)
- 2016 **Dunlap Park Shelter** 500 SF permanent shade structure for Urbandale Parks and Recreation, Urbandale, IA (\$70,000) with Rob Whitehead
- 2016 **80/35 Pavilion** 300 SF temporary structure for the 80/35 Festival, Des Moines, IA (\$15,000)
- 2015 **Shifting Foundations** 10,000 SF permanent exhibition for the Louisiana Coastal Restoration and Protection Authority as part of the LSU CSS, project manager with Jeff Carney and Jacob Mitchell (\$1.3 million)

Recognitions for Extension / Professional Practice / Engagement

- 2018 AIA Baton Rouge Rose Award for Shifting Foundations
- 2017 IM_RU selected project presentation and exhibition for the 2017 ACADIA Conference
- 2016 ARCH Daily "Best Student Design/Projects" Recognition for 80/35 Pavilion

Professional Development

- 2019 **Programming 1 Training** Kuka Robotics (40 hours)
- 2018 **Inaugural Cohort** ISU Cardinal Women Program (20 hours / applied)
- 2016 **The Grantsmanship Center** Workshop (40 hours)

VI. INSTITUTIONAL SERVICE

University Service

2021-2022 **Member** ISU Promotion and Tenure - Innovation and Entrepreneurship (PTIE) Committee (invited)
2017-2020 **Member** ISU Student Innovation Center Fabrication Equipment/Hardware Subcommittee (invited)
2017- **Faculty Affiliate** Women's and Gender Studies Program at Iowa State (applied)

College Service (Active)

2020-2023 **Co-Chair** College of Design Lectures and Exhibitions Committee (elected)

College Service (Completed)

2019 **Member** College of Design Strategic Planning Committee for X-disciplinarity (volunteered)
2018-2019 **Member** College of Design Lectures and Exhibitions Committee (appointed)
2015-2019 **Member** College of Design, Digital Media Minor Committee (appointed)

Departmental Service (Active)

2019- **Member** Department of Architecture, Public Programs Committee (appointed)
2016- **Member** Department of Architecture, Practice Substantive Area Committee (volunteered)
2016- **Member** Department of Architecture, Design Substantive Area Committee (volunteered)
2016- **Member** Department of Architecture, Technology Substantive Area Committee (volunteered)

Departmental Service (Completed)

2020-2021 **Member** Design, Computation and Performance Position Search Committee (appointed)
2017-2021 **Member** Department of Architecture, Curriculum Committee (elected)
2017-2021 **Chair** Department of Architecture, Practice Substantive Area (elected)
2016-2020 **Member** Department of Architecture, Global Image Committee (appointed)
2016-2019 **Co-Chair** Department of Architecture, Public Programs Committee (appointed)
2016-2019 **Member** Department of Architecture, Research Committee (appointed)
2018-2019 **Member** Ad Hoc Committee for Architectural Technologies (invited)
2018-2019 **Member** Graduate Committee (appointed)
2016-2017 **Member** Department of Architecture, Communications Substantive Area Committee (volunteered)

2014-2015 **Faculty Liaison** LSU AIAS (volunteered)
2014-2015 **Faculty Committee** LSU School of Architecture Digital Technology (appointed)
2014-2015 **Member** LSU School of Architecture Wood Shop Committee (appointed)
2014-2015 **Founding Member** Gauge-LSU School of Architecture Student Works Book (volunteered)
2014-2015 **Founding Member** LSU Diversity Committee (volunteered)

Student Organization Service

2021 **Faculty Advisor** National Association of Minority Architecture Students Competition (invited)
2017-2021 **Faculty Advisor** American Institute of Architects Student Chapter (volunteered)
2016-2017 **Faculty Advisor** Iowa Women in Architecture Student Chapter (volunteered)