

curriculum vitae

lawson spencer

t: +1.210.204.5724

e: lawsonleespencer@gmail.com

w: <https://lawsonspencer.com/>

introduction:

occupation(s)

biography

instructor - Cornell University, Department of Design Tech

Lawson's research broadly investigates computational methods to automate fabrication workflows and structurally simulate innovative building assemblies. As a roboticist, Lawson has developed several robotic workflows for subtractive manufacturing with timber and additive manufacturing with concrete. Additionally, Lawson has designed and developed several augmented reality (AR) and mixed reality (MR) interfaces for bespoke construction and assembly.

education:

Cornell University

aug 2017 - dec 2021

Master of Architecture - thesis: "Dirt Scales: Towards a Decomposable, Machined Rammed Earth." Advised by: David Costanza and Marta H. Wisniewska

Texas Tech University

aug 2013 - dec 2016

Bachelor of Science in Architecture

professional employments:

Hannah Office

jan 2022 - jun 2024

{ithaca, ny}

project lead 3 projects - project lead for the design, robotic fabrication, parametric modeling, structural coordination, and construction of both *Monarchs: A House in Six Parts* at Coachella 2024 [all phases] and the *Unlog* pavilion at the University of Virginia Biomaterial Exposition 2022 [all phases].

UN Studio

feb 2020 - aug 2020

{amsterdam, nl}

architectural intern 2 projects - assisted with the design, site diagrams, area calculation, and the general building massing for the *Penang South Islands* [competition]; assisted with the conceptual diagrams, building massing, building sections, and design of the conference building façade, atrium, and program for the *OIC Headquarters* [competition].

Morphosis

aug 2019 - feb 2020

{new york, ny}

architectural intern 4 projects - assisted with the atrium design, interior elevations, plans, section details, concept diagrams, and perspectival renderings of the *Honors College at USF* [DD & CD phases]; constructed and photographed a section model of the *Alexandria Bay Port of Entry* [CA phase].

Jakob + MacFarlane

may 2019 - aug 2019

{paris, fr}

architectural intern 2 projects - assisted with the construction documents and material calculations for *Trinum: Mediatheque for Digital Culture* [DD phase]; assisted with the material finish drawings, wall details, site massing, and façade elevations of the *FA + U Mons Architecture School* [ASD & DD phases].

a-mr (Rob Mothershed)

jun 2018 - aug 2018

{los angeles, ca}

architectural intern 5 projects - assisted with the construction documents (plan, sections, elevations, equipment specification sections) for marijuana cultivation, retail, and extraction facilities.

Gensler

jan 2017 - aug 2017

{dallas, tx}

architectural intern 9 projects - assisted with the urban planning studio on presentation documents, rendered perspectives, site plans, and construction documents (wall sections, plans, and section details).

G W Mitchell Construction

may 2015 - aug 2015

{san antonio, tx}

project engineer intern + field laborer 4 projects - drafted RFI's, reviewed submittals, reviewed "As-Built" drawing, installed windows, and assisted with light-gauge metal framing.

Dovetail Construction

may 2012 - dec 2014

{san antonio, tx}

field laborer 6 projects - assisted with demolition, timber framing, light-gauge metal framing, and painting on two condominiums and four houses.

academic appointments:

Cornell University
aug 2024 – may 2025

Cornell University
jun 2024 – aug 2024

Cornell University
aug 2021 – dec 2021

Cornell University
jan 2021 – may 2021

Texas Tech University
jan 2016 – dec 2016

instructor – College of Architecture, Art, and Planning, Department of Design Tech.

teaching associate – Cornell School of Continuing Education.

teaching assistant – College of Architecture, Art, and Planning, Department of Architecture.

teaching assistant – College of Architecture, Art, and Planning, Department of Architecture.

student assistant – College of Architecture.

research appointments:

Cornell University,
Robotic Construction
Laboratory (RCL)
dec 2022 – jun 2024

research associate – Sasa Zivkovic – investigated the use of bandsawn robotics in glulam and CLT manufacturing for *Twistedlam* with methods for shape optimization for *Slimlam* and structural simulation for the *Unlog Tower*. Parallel research has investigated methods for 3D printed concrete prefab building elements and the use of AR and MR interfaces for the fabrication and assembly of bespoke timber structures.

Cornell University,
Robotic Construction
Laboratory (RCL)
may 2021 – dec 2022

research assistant – Sasa Zivkovic – investigated the use of bandsawn robotics in glulam and CLT manufacturing with structural simulations for *Slimlam* and *Twistedlam* with methods for AR and MR fabrication for *Unlog*, and the *Unlog Tower*.

Cornell University
jan 2019 – may 2019

research assistant – Sarosh Anklesaria – digitally modeled the *Government Museum in Chandigarh* for the *Endless Pavilion* (2019).

Cornell University
jan 2018 – may 2018

research assistant – Aleksandr Mergold – assisted with the design, drawings, and construction of an installation at the *American Spolia Exhibit* (2018).

Texas Tech University
aug 2015 – dec 2016

research assistant – Mari Michael Glassell – researched and gathered information to develop an urban information system module to find program space adjacencies at an urban scale.

awards, scholarships, and grants:

2023

Best Paper Award at ACADIA Conference 2023 for “Extended Reality (XR) Workflows for Multi-Material Assemblies” by: Spencer, Lawson, Alexander Htet Kyaw, Sasa Zivkovic, and Leslie Lok

2023

Robert James Eidlitz Travel Fellowship – recipient

2022

AIA Upjohn Research Initiative – collaborator

2018

Andrew W. Mellon Foundation Collaborative Studies in Architecture, Urbanism, and the Humanities Fellowship – recipient

2017

Mary Miller Lyons Graduate Fellowship – recipient

2017

Director’s Award – recipient

2016

Runner-Up in Dean’s Cup Competition 2016 for “Adaptive Tissue” with Geoffrey Ford and Dianze Wu. Proceedings exhibited in *Crop 07* by the Texas Tech University College of Architecture.

2016

Chapman Harvey Architecture Scholarship – recipient

2016

Study Abroad Design Scholarship – recipient

community involvement:

2024

The Association for Computer-Aided Architectural Design Research in Asia (CAADRIA) – conference peer reviewer

2023 - 24	The Association for Computer Aided Design in Architecture (ACADIA) – member
2023 - 24	The Sociedad Iberoamericana Society of Digital Graphics (SIGraDi) – conference peer reviewer
2023	First-Year Undergraduate Mid-Review Critic at Ithaca College
2020	First-Year Undergraduate Mid-Review at New York Institute of Technology 2019
2020	Undergraduate Thesis Final-Review at New York Institute of Technology
2019	Undergraduate Thesis Mid-Review at New York Institute of Technology
2016	Student Grade Appeals Committee – reviewed and voted on grade disputes between students and professors.
2015 - 18	American Institute of Architecture Students (AIAS) – member
2013 - 14	Global Art Brigades – member

peer reviewed articles:

2024	<p>Kyaw, Alexander Htet, Lawson Spencer, and Leslie Lok. 2024. "Human-Machine Collaboration Using Gesture Recognition in Mixed Reality and Robotic Fabrication." <i>Architectural Intelligence</i> 3 (1): 11. https://doi.org/10.1007/s44223-024-00053-4.</p> <p>Spencer, Lawson, Moneeb Genedy, James Strait, Sriramya Duddukuri Nair, and Sasa Zivkovic. 2024. "Concrete Gyroid: An Additive Manufacturing (AM) Method to 3D Print Gyroid Geometries with a Cementitious Material." <i>Construction Robotics</i> 8 (2): 11. https://doi.org/10.1007/s41693-024-00124-y.</p>
2023	<p>Lok, Leslie, Sasa Zivkovic, and Lawson Spencer. 2023. "UNLOG: A Deployable, Lightweight, and Bending-Active Timber Construction Method." <i>Technology/Architecture + Design</i> 7 (1): 95-108. https://doi.org/10.1080/24751448.2023.2176146.</p> <p>Spencer, Lawson, Yifei Peng, Peter Smallidge, Matthew T. Reiter, and Sasa Zivkovic. 2023. "Slimlam Method: Robotically Bandsawn Timber for Glulam Applications." <i>Construction Robotics</i>, May. https://doi.org/10.1007/s41693-023-00102-w.</p>

peer reviewed proceedings:

2024	<p>Kyaw, Alexander Htet, Lawson Spencer, Sasa Zivkovic, and Leslie Lok. 2024. "Gesture Recognition for Feedback Based Mixed Reality and Robotic Fabrication: A Case Study of the UnLog Tower." In <i>Phygital Intelligence</i>, edited by Chao Yan, Hua Chai, Tongyue Sun, and Philip F. Yuan, 331-45. Singapore: Springer Nature Singapore. https://doi.org/10.1007/s44223-024-00053-4.</p>
2023	<p>Conrad, John, Lawson Spencer, Roberto Amador, Tyler Linnehan, Moneeb Genedy, Nair Sriramya, and Sasa Zivkovic. 2023. "Concrete Printed Gyroid Column: A Structurally Optimized, Sand Layer Supported Printing Method." In <i>Proceedings of the 41st eCAADe Conference</i>, edited by Wolfgang Dokonal, Urs Hirschberg, and Gabriel Wurzer, 1:641-50. Graz: eCAADe. https://doi.org/10.52842/conf.ecaade.2023.1.641.</p> <p>Spencer, Lawson, Alexander Htet Kyaw, Sasa Zivkovic, and Leslie Lok. 2023. "Extended Reality (XR) Workflows for Multi-Material Assemblies." In <i>Proceedings of the 43rd Conference of the Association of Computer Aided Design in Architecture (ACADIA)</i>, edited by Assia Crawford, Nancy Diniz, Richard Beckett, Jamie Vanucchi, and Marc Swackhamer, 2:318-28. ACADIA. Denver: ACADIA.</p>

2023 (continued)

Spencer, Lawson, Kurt A. Jordan, and Leslie Lok. 2023. "UnFrame: An Augmented Reality Narrative on the History and Possible Future of North American Timber Framing." In *Proceedings of the XXVII International Conference of the Ibero-American Society of Digital Graphics (SIGraDi 2023)*, edited by Fernando García Amen, Ana Laura Goñi Fitipaldo, and Armagno Gentile, 1385–96. SIGraDi. Punta del Este, Maldonado, Uruguay: SIGraDi.

Spencer, Lawson, Matthew T. Reiter, Leslie Lok, and Sasa Zivkovic. 2023. "The Finite Element Method (FEM) of the Unlog Tower." In *Advances in Architectural Geometry 2023*, edited by Kathrin Dörfler, Jan Knippers, Achim Menges, Stefana Parascho, Helmut Pottmann, and Thomas Wortmann, 29–42. Berlin, Boston: De Gruyter. <https://doi.org/doi:10.1515/978311162683-003>.

Spencer, Lawson, and Leslie Lok. 2024. "The UnFrame AR Exhibition." In *Proceedings of the 6th Media Architecture Biennale Conference*, 90–101. MAB'23. New York, NY, USA: Association for Computing Machinery. <https://doi.org/10.1145/3627611.3627620>.

Zhang, Chi, Lauren Franco, Lawson Spencer, and Sasa Zivkovic. 2023. "TwistedLam: A Robotic Fabrication Method for Hyperbolic Paraboloid Glulam and CLT Blanks." In *Proceedings of the 28th CAADRIA Conference*, edited by Immanuel Koh, Dagmar Reinhardt, Mohammed Makki, Mona Khakhar, and Nic Bao, 281–90. CAADRIA. Ahmedabad: CAADRIA. <https://doi.org/10.52842/conf.caadria.2023.2.281>.

2021

Jiang, Jennifer, Lawson Spencer, and Liss C. Werner. 2021. "Public Gratification Palace: A Framework for Increased Civic Engagement." In *Media Architecture Biennale 20*, 131–40. MAB20. Amsterdam, The Netherlands: Association for Computing Machinery. <https://doi.org/10.1145/3469410.3469423>.

Lok, Leslie, Asbiel Samaniego, and Lawson Spencer. 2021. "Timber De-Standardized: A Mixed-Reality Framework for the Assembly of Irregular Tree Log Structures." In *Proceedings of the 40th Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA)*, edited by Behnaz Farahi, Biayna Bogosian, Jane Scott, Jose Luis García del Castillo y López, Kathrin Dörfler, June A. Grant, Stefana Parasho, and Vernell A. A. Noel, 222–31. ACADIA.

conference presentations:

2023

Spencer, Lawson. 2023. "Concrete Printed Gyroid Column: A Structurally Optimized, Sand Layer Supported Printing Method." Conference Presentation presented at the Digital Design Reconsidered - 41st eCAADe conference, Online.

Spencer, Lawson. 2023. "The Finite Element Method (FEM) of the UnLog Tower." Conference Presentation presented at the Advances in Architectural Geometry 2023, Stuttgart, Germany.

Zhang, Chi, Lauren Franco, and Lawson Spencer. 2023. "TwistedLam: A Robotic Fabrication Method for Hyperbolic Paraboloid Glulam and CLT Blanks." Presented at the Human Centric - 28th CAADRIA Conference, Online, 03/18.

2016

Spencer, Lawson. 2016. "An Architectural Process Ideology." Conference Presentation presented at the Undergraduate Research Conference, Lubbock, Texas.

courses taught:

spring 2023

ARCH 4101/4102/5101/5116/8913: option studio: **PRINT BETTER!** - fabrication and building technology studio on 3D printed concrete for single-family homes at the White Hawk Ecovillage. | coordinator: Sasa Zivkovic, co-instructor: Lawson Spencer

fall 2022

ARCH 4605/6605: elective seminar: **Architectural 3D Printing** – 3D printed concrete technologies | course taught by Sasa Zivkovic, teaching support and tutorials provided by Lawson Spencer

spring 2022

ARCH 4605/6605: elective seminar: **Robotic Routines** – research in sustainable wood and timber fabrication | course taught by Sasa Zivkovic, teaching support and tutorials provided by Lawson Spencer