curriculum vitae

Lawson Spencer

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introduction

occupation:

Instructor - Cornell University, Department of Design Technology
Director of Robotics and Technical Research - Cornell University, College of Architecture, Art, and Planning (AAP)

biography:

Spencer's work operates at the intersection of computational design, structural innovation, and robotic fabrication. His research integrates parametric modeling, digital fabrication, and structural simulation tools to explore materially efficient building assemblies and new fabrication techniques. Using industrial robotic arms and various tools for digital fabrication, he has developed new methods for timber subtractive manufacturing and digitally assisted construction. Additionally, he has co-created several augmented and mixed reality interfaces for the instruction and assembly of bespoke timber structures. He continues to collaborate with colleagues from Cornell's Duffield College of Engineering on projects involving concrete additive manufacturing and novel timber structures. Spencer's research has resulted in several experimental pavilions and installations that demonstrate new possibilities for computational design and robotic fabrication while imagining new possibilities for how emerging technologies can contribute to a more sustainable, materially efficient, and socially equitable fabrication and design environment. More recently, Spencer has focused on designing, developing, and integrating custom end-effectors for additive manufacturing into robotic controllers in support of other faculty and student coursework and research.

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 Architecture

professional employment

Hannah Office
Jan. 2022 – Jun. 2024
{Ithaca, NY}

project manger - 3 projects - project manager for the design, robotic fabrication, parametric modeling, structural coordination, and construction of both *Monarchs: A House in Sic Parts* at Coachella 2024 and *Unlog* at the University of Virginia Biomaterial Exposition 2022.

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 Alexanderia 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).
GW 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. 2026 - Present	**director of robotics and technical research** – College of Architecture, Art, and Planning
Cornell University Aug. 2024 - Present	**instructor** – Department of Design Technology
Cornell University Jun. 2024 – Aug. 2024	**teaching associate** – Cornell School of Continuing Education.
Cornell University, Robotic Construction Laboratory (RCL) Dec. 2022 – Jun 2024	**research associate** – Sasa Zivkovic (PI) – 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, RCL May 2021 – Dec. 2022	**research assistant** – Sasa Zivkovic (PI) – 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. 2021 – Dec. 2021	**teaching assistant** – College of Architecture, Art, and Planning, Department of Architecture.
Cornell University Jan. 2019 – May 2019	**research assistant** – Sarosh Anklesaria (PI) – digitally modeled the Government Museum in Chandigarh for the Endless Pavilion (2019).
Cornell University Jan. 2018 – May 2018	**research assistant** – Aleksandr Mergold (PI) – assisted with the design, drawings, and construction of an installation at the American Spolia Exhibit (2018).
Texas Tech University Jan. 2016 – Dec. 2016	**student assistant** – College of Architecture
Texas Tech University Aug. 2015 – Dec. 2016	**research assistant** – Mari Michael Glassell (PI) – researched and gathered information to develop an urban information system module to find program space adjacencies at an urban scale.

awards

2024	**Best Paper Award** in Architectural Intelligence, 2024, for "Human-machine collaboration using gesture recognition in mixed reality and robotic fabrication" by: Alexander Htet Kyaw, Lawson Spencer, and Leslie Lok
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
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.

grants & scholarships

2024	AAP Sustainability Fund – recipient for *Robotic Glulam Joinery: New connections for mass timber products*
2023	Robert James Eidlitz Travel Fellowship – recipient for *From Detail to Manufacturing for Shared Housing: 100 Years of the Zollinger Patent*
2022	AIA Upjohn Research Initiative – collaborator for *Slimlam: Structurally Optimized Glulam Beams Made from Robotically Fabricated, EAB-Infested Ash Wood*
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	Chapman Harvey Architecture Scholarship – recipient
2016	Study Abroad Design Scholarship – recipient

community involvement

2026	Design Tech Field Member (minor member appointment) at Cornell University
2024	The Association for Computer-Aided Architectural Design Research in Asia (CAADRIA) – conference peer review committee member
2023 - present	The Association for Computer Aided Design in Architecture (ACADIA) – member
2023 – present	The Sociedad Iberoamericana Society of Digital Graphics (SIGraDi) – conference peer review committee member
2016	Student Grade Appeals Committee – reviewed and voted on grade disputes between students and professors
2015 – 2018	American Institute of Architecture Students (AIAS) – member
2013 – 2014	Global Art Brigades – member

invited critic

2023	First-Year Undergraduate Mid-Review Critic at Ithaca College
2020	First-Year Undergraduate Mid-Review at New York Institute of Technology
2020	Undergraduate Thesis Final-Review at New York Institute of Technology
2019	Undergraduate Thesis Mid-Review at New York Institute of Technology

peer-reviewed journal articles

2026	Lunsford, Caleb Vincent, **Lawson Spencer**, Dongye Shen, Moneeb Genedy, Sasa Zivkovic, Onur Ozturk, and Sriramya Duddukuri Nair. 2026. "Effect of Toolpath Strategies on Anisotropy and Structural Performance of 3D Printed Concrete Gyroid Walls." *Journal of Building Engineering* 122 (March). https://doi.org/10.1016/j.jobe.2026.115772.
2024	Kyaw, Alexander Htet, **Lawson Spencer**, and Leslie Lok. 2024. "Human–Machine Collaboration Using Gesture Recognition in Mixed Reality and Robotic Fabrication." Architectural Intelligence 3 (1): 11. https://doi.org/10.1007/s44223-024-00053-4.
	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." *Construction Robotics* 8 (2): 11. https://doi.org/10.1007/s41693-024-00124-y.
2023	Lok, Leslie, Sasa Zivkovic, and **Lawson Spencer**. 2023. "UNLOG: A Deployable, Lightweight, and Bending-Active Timber Construction Method." *Technology|Architecture + Design* 7 (1): 95–108. https://doi.org/10.1080/24751448.2023.2176146.
	Spencer, Lawson, Yifei Peng, Peter Smallidge, Matthew T. Reiter, and Sasa Zivkovic. 2023. "Slimlam Method: Robotically Bandsawn Timber for Glulam Applications." *Construction Robotics*, May. https://doi.org/10.1007/s41693-023-00102-w.

peer-reviewed conference proceedings

2024	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 Phygital Intelligence, 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.

2023 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 *Proceedings of the 41st eCAADe Conference*, edited by Wolfgang Dokonal, Urs Hirschberg, and Gabriel Wurzer, 1:641–50. Graz: eCAADe. https://doi.org/10.52842/conf.ecaade.2023.1.641.

Spencer, Lawson, Alexander Htet Kyaw, Sasa Zivkovic, and Leslie Lok. 2023. "Extended Reality (XR) Workflows for Multi-Material Assemblies." In *Proceedings of the 43rd Conference of the Association of Computer Aided Design in Architecture (ACADIA)*, edited by Assia Crawford, Nancy Diniz, Richard Beckett, Jamie Vanucchi, and Marc Swackhamer, 2:318–28. ACADIA. Denver: ACADIA.

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:10.1515/9783111162683-003.

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

2026 – fall DESIGN 4297/6297: core elective: **Coding for Design I** | instructors: Marirena Kladeftira and Lawson Spencer | credits: 3
DESIGN 4197/6197: open seminar: **Robotic Fabrication and Parametric Design** | instructor: Lawson Spencer | credits: 3
DESIGN 6999: independent study: **Robotically Fabricated Hardware-less Trusses** | advisor: Lawson Spencer | student: Riley Wines | credits: 3

2026 - summer ARCH 1110: core studio: **Introduction to Architecture** | instructors: David Costanza and Lawson Spencer | credits: 6
ARCH 1300: core elective: **Digital Representation** | instructors: David Costanza and Lawson Spencer | credits: 3
DESIGN 6999: independent study: **Robotically Fabricated Timber Joints** | advisor: Lawson Spencer | student: Riley Wines | credits: 1

2026 – spring DESIGN 6152: core studio: **Design and Making Across Disciplines II** | coordinator: Jenny E. Sabin; co-instructors: Tiffany Cheng and Lawson Spencer | credits: 6
DESIGN 4197/6197: open seminar: **Parametric Assemblies**: Special Topics: Robotic Fabrication & Design | instructor: Lawson Spencer | credits: 3
DESIGN 6999: independent study: **Smart Lunar Habitats: Embedded Sensing in Additively Manufactured Regolith Structures** (Aerospace Engineering MS Design project) | advisor: Lawson Spencer | student: Hailey Wadell | credits: 3

2025 – fall DESIGN 6151: core studio: **Design and Making Across Disciplines I** | coordinator: Tiffany Cheng, co-instructor: Lawson Spencer | credits: 6
DESIGN 4197/6197: open seminar: **Rethinking Timber Joinery**: Special Topics: Robotic Fabrication & Design | instructor: Lawson Spencer | credits: 3
DESIGN 6999: independent study: **Smart Lunar Habitats: Embedded Sensing in Additively Manufactured Regolith Structures** (Aerospace Engineering MS Design project) | advisor: Lawson Spencer | student: Hailey Wadell | credits: 3
1st Year Onboarding: Design Tech Foundations: Polyhedral Procedures | coordinator: Lawson Spencer | co-instructors

2025 – spring DESIGN 6152: core studio: **Design and Making Across Disciplines II** | coordinator: Jenny E. Sabin, co-instructors: Laura Maria Gonzalez, Marirena Kladeftira, and Lawson Spencer | credits: 6
DESIGN 4197/6197: open seminar: **Parametric Assemblies**: Special Topics: Robotic Fabrication & Design | instructor: Lawson Spencer | credits: 3

	DESIGN 6999: independent study: **Between Structure and Ornament: A Case Study of a Digitally Fabricated Plywood Dome** | instructor: Lawson Spencer | student: Zeiad Amin | credits: 3
	ARCH 3397/3349: independent study: **The Trial of Yasuni** | instructor: Lawson Spencer | student: Alejandra Siguenza | credits: 2
2024 – fall	DESIGN 6151: core studio: **Design and Making Across Disciplines I** | coordinator: Jenny E. Sabin, co-instructors: Laura Maria Gonzalez and Lawson Spencer | credits: 6
	DESIGN 4197/6197: open seminar: **Rethinking Timber Joinery**: Special Topics: Robotic Fabrication & Design | instructor: Lawson Spencer | credits: 3
2023 – spring	ARCH 4101/4102/5101/5116/8913: option studio: **PRINT BETTER!** | coordinator: Sasa Zivkovic, co instructor: Lawson Spencer | credits: 6
2022 – fall	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 | credits: 3
2022 – spring	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 | credits: 3

built work

2026	*Encroach* {temporary pavilion} | at Cornell University for the Cornell Council of the Arts (CCA) | design & principal investigator: Katharina Kral, director of Housing Innovation Lab; **construction consultant: Lawson Spencer**
2025	*Polylith* {temporary pavilion} at BuildFest for the Bethel Woods Art and Architecture Festival | **principal investigator(s)**: Ekin Erar and **Lawson Spencer**
2024	*Curtain Call* {temporary pavilion} at BuildFest for the Bethel Woods Art and Architecture Festival | principal investigators: Cait McCarthy and Jordan Young, founders and principals of Office Office; **construction consultant: Lawson Spencer**
2024	*Monarchs: A House in Six Parts* {temporary pavilion} at Coachella | design and principal investigators: Leslie Lok and Sasa Zivkovic, founders and principals of HANNAH | **project manager: Lawson Spencer**
2022	*Unlog Tower* {temporary pavilion} at Cornell University for the Cornell CCA Biennial | principal investigator: Leslie Lok, director of the Rural Urban Building Innovation (RUBI) Lab | **project manager: Lawson Spencer**
2022	*Unlog* {temporary pavilion} at the University of Virginia for the Biomaterial Building Exposition | principal investigators: Leslie Lok and Sasa Zivkovic, founders and principals of HANNAH | **project manager: Lawson Spencer**

exhibition

2025	*Design Tech Open Studio* at Cornell University, Ithaca Campus and Cornell Tech | **co-curation and coordination**: Tiffany Cheng, Laura Maria Gonzalez, **Lawson Spencer**, Mercy Akande, and Jenny Sabin