Luming Xiao, Ph.D. Candidate in Architecture

Department of Architecture | Daylighting Laboratory

Texas A&M University, College Station, TX

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Google Scholar | ORCID | ResearchGate | Laboratory Website | Portfolio

Education

Doctor of Philosophy in Architecture (Expected August 2027)

Texas A&M University | Advisor: Liliana O. Beltrán

Dissertation: *AI-Driven Daylighting Support System: A Comprehensive 3D Grid-Based Multi-Directional Metamodel for Daylighting Design*

Master of Architecture, 2020

Washington State University

Final Design Project: *Treehouse in Urban* — The Book Award

Bachelor of Engineering in Architecture, 2017

Zhejiang University of Technology

Final Design Project: *Architecture Teaching Building* — Selected as the class's best project

Academic Appointments

Texas A&M University

Teaching Assistant | Fall 2021, Fall 2022, and Spring 2023–Fall 2026

Research Assistant | Summers 2021–2026 and Spring 2022

Washington State University

Research Assistant | Summer 2020–Spring 2021

Teaching Assistant | Fall 2019–Spring 2020

Professional Experience

Huaxin Consulting Co., Hangzhou, China

Sustainable Design Lead and Internal Trainer | 2013–2018

Architectural Designer | 2011–2013

Architectural Intern | 2010–2011

Research Experience

Research Interests | Architectural daylighting, sustainable architecture, AI-assisted design, building performance simulation, and computational tools for design and education

Texas A&M University, College of Architecture

Faculty Advisor: Dr. Liliana O. Beltrán

Doctoral Research | Spring 2024–Present

AI-Driven Daylighting Support System: A Comprehensive 3D Grid-Based Multi-Directional Metamodel for Daylighting Design

- Developed a deep learning framework trained on Radiance simulations to predict indoor daylight distribution in three dimensions.
- Evaluated the accuracy and computational efficiency of AI predictions against physics-based simulations to identify the strengths and limitations of AI in early-stage daylighting design.
- Examine how predictions across multiple heights and orientations reveal variations beyond a single work plane, supporting spatial analysis in architectural design and education.

Selected Research Projects

Independent Research | Fall 2026–Present

Assessing spectral sky model accuracy for annual daylight simulation using EPW climate data

- Developed a Radiance workflow for point-in-time and annual spectral daylight simulations using EnergyPlus Weather (EPW) files.
- Comparing predictions from LARK v3, ClimateStudio v2.4, and Radiance 6.1 with field spectrophotometric measurements to evaluate model accuracy.
- An abstract was submitted to CIE 2027.

Research Assistant | Spring 2026–Present

Assessing Passive Survivability under LEED 5 during power disruptions in hot-climate residential buildings

- Developed a ClimateStudio workflow to simulate indoor conditions during power outages and assess passive survivability using LEED v5 criteria.
- Measured indoor thermal and lighting conditions in a Central Texas home to characterize the conditions occupants experience.
- The abstract was accepted for IBPSA Building Simulation 2027.

Independent Research | Spring 2026–Fall 2026

Contrasting spectral sky modeling approaches with field spectrophotometric measurements in central Texas under clear, partly cloudy, and overcast skies

- Developed spectral sky simulation workflows in LARK v3 and ClimateStudio v2.4 for clear, partly cloudy, and overcast skies.
- Compared simulated daylight metrics with field spectrophotometric measurements under each sky condition.
- Research outcomes were presented at the ASES SOLAR 2026 Conference.

Research Assistant | Fall 2025–Summer 2026

Zero Net Carbon Homes in Hot-Humid Climates: A Climate-Responsive Design Approach

- Engaged in a comprehensive evaluation of an existing house in College Station, Texas, addressing thermal, visual, and acoustic comfort while targeting net-zero energy performance and a healthy indoor environment.
- Responsible for preparing digital simulations, collecting on-site measurement data, and developing comparative analytical diagrams to support performance assessment and discussion.
- Research outcomes were presented at the PLEA 2026 Conference.

Independent Research | Fall 2024–Fall 2025

Developing Early Design Stage Tools for Windows Considering Sky Conditions, Solar Radiation, and Shading Control

- Developed two design tools to help students understand solar geometry and sky conditions using real weather data (EPW files).
- The tools enable comprehensive evaluation of window and shading designs in relation to thermal and daylighting performance and provide annual sky condition analyses to support window–shading optimization in design projects.
- Research outcomes were presented at the IBPSA 2025 Conference.

Research Assistant | Fall 2024–Fall 2025

Assessing Melanopic Illuminance in Homes: From Design to Construction

- Conducted digital modeling and daylight simulation analyses to evaluate melanopic illuminance.
- Performed on-site measurements of indoor and outdoor lighting conditions and compared field data with simulation results.
- Developed analytical diagrams and visualizations for a conference poster.
- Research outcomes were presented at the CIE Midterm Meeting, Vienna, July 7–9, 2025.

Research Assistant and Project Team Lead | Fall 2023–Fall 2024

Fusing Environmental Technologies with Attached Housing in Rural Vietnam: A Synergistic Approach

- Led a joint team from Texas A&M University and Hanoi University of Civil Engineering in developing an attached housing design for a humid subtropical climate.
- Investigated local building strategies for passive thermal comfort and net-zero design. The team received the Team Spirit Award in the U.S. Department of Energy Solar Decathlon Design Challenge.
- Research outcomes were presented at PLEA 2024.

Research Assistant | Summer 2021–Fall 2023

Optimizing Daylighting: Exploring Visual and Non-Visual Effects through Weather, Orientation, and Location

Project funding: Texas A&M Triads for Transformation (T3), President's Excellence Fund

- Developed parametric scripts to simulate daylight across weather conditions, building orientations, and geographic locations.
- Analyzed daylight exposure metrics, prepared figures, and contributed to the conference paper presented at PLEA 2024.

Washington State University, School of Design and Construction

Faculty Supervisor: Prof. Mona Ghandi

Research Assistant | Fall 2020–Spring 2021

Interactive Meditation with Biometrics Project

- Helped design and build an interactive architectural prototype that used biometric input to vary sound, light, and shadow.
- Assisted with the integration of the biometric system into the physical structure and documented the prototype through technical reports and visual materials.

Volunteer Research Assistant | Fall 2020

Wisteria: Architecture as an embodiment of human emotion

- Assisted with the fabrication of an interactive architectural prototype that used participants' biometric signals to adjust spatial form and lighting in response to their emotional states.
- Project recognition: 2021 Architizer A+Awards, Popular Choice Winner in the Architecture + New Technology category.

Publications

In-Progress Manuscripts

L. Xiao, L. Beltrán. 2027. "Integrating Sky Ratio, Precipitation, and Sky Cover from EPW Weather Data for Annual Melanopic Daylight Analysis in Buildings."

Conference Proceedings & Accepted Papers

L. Xiao, L. Beltrán. 2027. "ASSESSING SPECTRAL SKY MODEL ACCURACY FOR ANNUAL DAYLIGHT SIMULATION USING EPW CLIMATE DATA." 31st Quadrennial Session of the CIE, CIE 2027. [Submitted Abstract; Proposed Oral Presentation]

L. Beltrán, **L. Xiao**. 2027. "Assessing Passive Survivability under LEED 5 during Power Disruptions in Hot-Climate Residential Buildings." IBPSA Building Simulation 2027. [Accepted Abstract; Proposed Oral Presentation]

L. Xiao, L. Beltrán. 2026. Contrasting spectral sky modeling approaches with field spectrophotometric measurements in Central Texas under clear, partly cloudy, and overcast skies." ASES SOLAR 2026, Austin, USA, October 19-21, 2026. [Presented; Proceedings Forthcoming]

L. Beltrán, **L. Xiao**. 2026. "Zero Net Carbon Homes in Hot-Humid Climates: A Climate-Responsive Design Approach." PLEA 2026, Costa Rica, July 27-31, 2026. [Presented; Proceedings Forthcoming]

L. Xiao, L. Beltrán. 2025. "Developing Early Design Stages Tools for Windows Considering Sky Conditions, Solar Radiation and Shading Control." IBPSA 2025, Brisbane, Australia, August 24-27, 2025. [Paper Link]

L. Beltrán, **L. Xiao**, R.T. Tumpa. 2025. "Assessing Melanopic Illuminance in Homes: from Design To Construction." The Midterm Meeting of the CIE 2025, Vienna, Austria, July 04-11, 2025. [Paper Link]

L. Beltrán, **L. Xiao**. 2024. "Optimizing Daylighting: Exploring Visual and Non-Visual Effects through Weather, Orientation, and Location." PLEA 2024, Wroclaw, Poland, June 25-28, 2024. [Paper Link]

L. Beltrán, **L. Xiao**, A. Ghayda, & A. Vazquez Molinary. 2024. "Fusing Environmental Technologies with Attached Housing in Rural Vietnam: A Synergistic Approach." PLEA 2024, Wroclaw, Poland, June 25-28, 2024. [Paper Link]

Posters in Peer-Reviewed Conferences

L. Xiao, L. Beltrán. 2026. Contrasting spectral sky modeling approaches with field spectrophotometric measurements in Central Texas under clear, partly cloudy, and overcast skies." ASES SOLAR 2026, Austin, USA, October 19-21, 2026. [Poster Link]

L. Beltrán, **L. Xiao**, R.T. Tumpa. 2025. "Assessing Melanopic Illuminance in Homes: from Design To Construction." The Midterm Meeting of the CIE 2025, Vienna, Austria, July 04-11, 2025. [Poster Link]

Non-peer-reviewed reports

L. Xiao. "A Brief Discussion on How to Apply BIM in IDC Projects for Enterprises," Architectural Engineering Technology and Design, Issue: 07/2018, Hunan Science and Technology Press, CN43 9000/TUISSN20956630

Teaching Experience

Teaching Areas | Sustainable architecture, building science and environmental systems, daylighting and electric lighting, building performance simulation, architectural design studio, and construction documentation.

Texas A&M University, College of Architecture

Teaching Assistant | ARCH 213: Sustainable Architecture | Approx. 150 students

Course Instructor: Dr. Liliana O. Beltrán | Spring 2023–Fall 2026

- Led live demonstrations of Climate Consultant, Solar Geometry Studio, Dynamic Daylight, and HEED to show students how to analyze local climate, develop climate-responsive strategies, and evaluate building performance to support net-zero energy design.
- Developed video tutorials and held office hours to answer questions, troubleshoot simulation models, and help students interpret their results.
- Helped prepare assignments and exams and graded student work across multiple offerings of this required undergraduate course.

Guest Reviewer and Software Workshop Instructor | Spring 2023–Fall 2026

ARCH 634: Architectural Lighting and ARCH 628: Tools for Green Building Design

Course Instructor: Dr. Liliana O. Beltrán

- Led hands-on tutorials in daylighting and building performance simulation for graduate students.
- Served on final project reviews across multiple semesters, giving students feedback on their analyses and how the results informed their design decisions.

Teaching Assistant | ARCH 249: Survey of World Architecture History I | Approx. 150 students

Course Instructor: Dr. Stephen Caffey | Fall 2022

- Graded assignments and examinations.

Teaching Assistant | ENDS 101: Environmental Design | Approx. 150 students

Course Instructor: Dr. Jorge Vanegas | Fall 2021

- Coordinated guest presentations, held office hours, and graded assignments and examinations.

Washington State University, School of Design and Construction

Teaching Assistant | Landscape Architectural Construction I, II, and III | Approx. 30 students

Course Instructor: Prof. Michael Sanchez | Fall 2019–Spring 2020

- Guided students through construction drawings and demonstrated construction techniques during labs and hands-on sessions at a project site.
- Supervised field exercises and helped grade assignments and examinations.

Selected Guest Lectures, Workshops, and Design Reviews

Guest Lecturer | ARCH 628: Tools for Green Building Design | Texas A&M University | September 19, 21, 26, 28, and October 3, 2023

- Delivered a lecture series on COMcheck, COMFEN, and the Solar Decathlon competition at the invitation of Dr. Liliana O. Beltrán.

Guest Lecturer | ARCH 213: Sustainable Architecture | Texas A&M University | September 19, 21, 26, 28, and October 3, 2023

- Lectured on site resources and solar geometry at the invitation of Dr. Liliana O. Beltrán.

Guest Lecturer | ARCH 634: Architectural Lighting | Texas A&M University | March 9, 2023

- Presented Net-Zero Housing in Northern Vietnam at the invitation of Dr. Liliana O. Beltrán.

Guest Reviewer and Daylighting Consultant | Solar Texas, Solar Decathlon Build Challenge | Texas A&M University | 2023

- Evaluated the finalist team's daylighting performance and recommended design revisions.

Guest Lecturer and Final Project Reviewer | ARCH 435: Integrated Systems | Texas A&M University | Fall 2022

- Demonstrated Revit, ClimateStudio, and Sefaira and reviewed students' final projects at the invitation of Dr. Liliana O. Beltrán.

Guest Lecturer | ARCH 511: Design Studio | Washington State University | September 27, 2022

- Presented Tools for Architectural Design at the invitation of Prof. Mona Ghandi.

Guest Lecturer | ARCH 634: Architectural Lighting | Texas A&M University | Spring 2022

- Demonstrated how to view 360° high dynamic range (HDR) images using an Oculus virtual reality headset at the invitation of Dr. Liliana O. Beltrán.

Workshop Leader | ARCH 511: Design Studio | Washington State University | September 27, 2021

- Led a hands-on workshop on Sefaira and Athena for architectural design at the invitation of Prof. Mona Ghandi.

Professional Training Experience

Internal Trainer | Huaxin Consulting Co., Hangzhou, China | 2013–2018

Selected training sessions for design staff

- **Revit for Site Planning** | October 2017

- **Updates to China's Fire Safety Codes for Buildings, Parking Garages, Vehicle Repair Garages, and Parking Lots** | November 2016
- **Applying Green Building and Building Energy Efficiency in Chongqing, China** | July 2016
- **Applying Green Building Evaluation Standards in Hangzhou, China** | May 2015
- **Revit for Architectural Design** | June 2014

Research and Teaching Software Development

Solar Geometry Studio | Web Application | 2026

- Developed an interactive tool for visualizing sun paths and exploring how solar geometry informs shading design in architectural practice and teaching.

Scientific HDR Studio | Windows Desktop Application | 2026

- Developed a Windows application that integrates Greg Ward's command-line HDR image builder to merge bracketed photographs and provides luminance analysis tools for visual comfort assessment.

Spectral Daylight Simulation Tools | Windows Desktop Application and Grasshopper | 2026

- Developed Radiance-based tools to simulate indoor and outdoor daylight spectra for a selected hour or at hourly intervals throughout the year.

Sky Type Studio | Web Application and Grasshopper | 2025–2026

- Developed a tool that classifies sky conditions from hourly weather data (EPW files) and visualizes how sky types vary throughout the day and across seasons.

3D Iterative Shading Mask Protractor | Grasshopper | 2024

- Combined 3D shading masks with annual sky irradiation simulations so designers can compare shading coverage and solar exposure as they refine a design.

Parametric Scripts for Daylight Analysis | Grasshopper | 2021–2022

- Developed Grasshopper scripts to evaluate design alternatives using multiple daylight metrics and collaborated with a computer science doctoral student to automate design optimization.

Presentations and Invited Talks

Conference Presentations

Poster Presentation | ASES National Solar Conference 2026 | Austin, TX | October 19–21, 2026

Contrasting Spectral Sky Modeling Approaches with Field Spectrophotometric Measurements in Central Texas under Clear, Partly Cloudy, and Overcast Skies.

Oral Presentation (Online) | Encuentro Científico Internacional (ECI) | Lima, Peru | January 2, 2026

La enseñanza de la iluminación natural y el desarrollo de herramientas para el diseño temprano de ventanas, considerando condiciones del cielo, radiación solar y control de sombreamiento.

Oral Presentation | IBPSA Building Simulation 2025 | Brisbane, Australia | August 26, 2025

Developing Early Design Stages Tools for Windows Considering Sky Conditions, Solar Radiation, and Shading Control.

Oral Presentation (Online) | 37th International Conference on Passive and Low Energy Architecture (PLEA 2024) | Wrocław, Poland | June 26, 2024

Fusing Environmental Technologies with Attached Housing in Rural Vietnam: A Synergistic Approach.

University Presentations

Poster Presentation | College of Architecture Showcase, Texas A&M University | November 3, 2026

Contrasting Spectral Sky Modeling Approaches with Field Spectrophotometric Measurements in Central Texas under Clear, Partly Cloudy, and Overcast Skies.

Poster Presentation | College of Architecture Showcase, Texas A&M University | October 9, 2025

Developing Early Design Stages Tools for Windows Considering Sky Conditions, Solar Radiation, and Shading Control.

Poster Presentation | College of Architecture Showcase, Texas A&M University | October 3, 2024

Optimizing Daylighting: Exploring Visual and Non-Visual Effects through Weather, Orientation, and Location.

Poster Presentation | School of Architecture Showcase, Texas A&M University | October 5, 2023

2023 Solar Decathlon Design Finalist Project: Khuoi Ky Attached Houses, Cao Bang, Vietnam.

Research Presentation | GPSA Research Exposition, Washington State University | March 28, 2019

Potlatch Jr.-Sr. High School Project.

Invited Talks

Invited Speaker | Department of Architecture, Huaxin Consulting Co., Ltd. | July 20, 2023

AI in Architectural Design

Honors and Awards

Fellowships and Scholarships

Aggie Graduate Summer Support Award | Graduate School, Texas A&M University | 2026

- Supported the final stage of dissertation research and writing.

JEDI Scholarship | American Solar Energy Society (ASES) | 2026

- Supported presentation of research on spectral sky modeling at the ASES National Solar Conference in Austin, TX.

Edward J. Romieniec Fellowship | College of Architecture, Texas A&M University | 2025

- Supported travel to Brisbane, Australia, to present research on early-stage window design tools at IBPSA Building Simulation 2025.

Raymond G. Post ’23 and Raymond G. Post, Jr. ’61 Endowed Scholarship in Architecture | Texas A&M University | 2024

Jeffrey Cook Retreat Scholarship | Society of Building Science Educators (SBSE) | 2024

- Supported participation in the SBSE Retreat for building science educators at the University of Arizona.

Edward J. Romieniec Fellowship | College of Architecture, Texas A&M University | 2023

- Supported participation in the Sustainable Design Camp at Kyushu University, Japan.

Young Professionals Scholarship | Illuminating Engineering Society (IES) | 2022

- Supported participation in the IES Annual Conference in New Orleans, LA.

University Top Off Scholarship | Texas A&M University | 2021

R.H. Logan Scholarship | Washington State University | 2019–2020

Academic and Student Design Awards

Student Merit Award | Texas Chapter of the American Society of Landscape Architects (TXASLA) | 2025

CITY ARTery — Architectural lead, Urban Design Competition for Students.

Student Merit Award | TXASLA | 2024

Pioneer Promenade — Architectural lead, Urban Design Competition for Students.

Fourth Place (Attached Housing Division) and Team Spirit Award | U.S. Department of Energy Solar Decathlon Design Challenge | 2023

Khuoi Ky Houses — Led the joint design team from Texas A&M University and Hanoi University of Civil Engineering.

Finalist | Pavilion of Humanity Competition, Buildner | 2020

Post-Anthropocene — Team lead.

The Book Award | School of Design and Construction, Washington State University | 2020

Treehouse in Urban — Master of Architecture final design project.

Honor Award | Hack-A-House Competition | 2019

Transforming Housing — Led the team in a one-day housing design competition.

Best in Show Award | AIA Spokane Design Awards | 2019

Inflatable Structure for Children — Selected by a jury of Spokane-area architects from student projects submitted by regional universities.

Third Place (Arts & Education Sciences) | GPSA Research Exposition, WSU | 2019

Potlatch Jr.-Sr. High School Project — Led the architecture team in collaboration with interior design students.

Top-Ranked Final Design Project | Zhejiang University of Technology | 2017

Architecture Teaching Building — Ranked first among final design projects in the graduating architecture class.

Professional Practice Awards

Third Place, Outstanding QC Team | National Construction Engineering QC Achievement Competition | 2018

Improving the Use of Building Information Modeling in Internet Data Center Projects — Architectural lead for Huaxin's BIM quality control team.

First Place | Zhejiang Excellent Communication Engineering Construction Project Award | 2017

China Telecom Chongqing Cloud Data Center, Phase I — Led sustainable design and site planning.

Qianjiang Cup Award | Zhejiang Provincial Department of Housing and Urban-Rural Development | 2015

China Telecom Shaoxing Textile City Hub Building — Served as architectural designer and the firm's on-site representative from schematic design through construction.

Academic and Professional Service

Peer Review

Conference Reviewer | International Building Performance Simulation Association (IBPSA) | 2026

Manuscript Reviewer | Journal of Planning Education and Research | 2025

University Service and Outreach

College of Architecture Representative | Youth Career Fair, Brazos County Expo Center | October 7, 2026, and October 8, 2025

- Introduced eighth-grade students to the architecture major at Texas A&M University. Each fair drew more than 2,600 students.

College of Architecture Representative | Aggieland Saturday, Texas A&M University | Feb 28, 2026

- Introduced prospective students and visitors to the architecture program, the Daylighting Laboratory, and other college facilities.

Research Volunteer | Design for Health: Age-Friendly Communities to Promote Healthy Aging in Place, Texas A&M University | 2025

- Recruited older adults from the local community to participate in a survey on aging in place.

Selected Design Projects

Selected Professional Projects

Huaxin Consulting Co. | Hangzhou, China | 2010–2018

Contributed to the architectural design of approximately 48 projects, primarily data centers, with additional work on educational, residential, office, and mixed-use buildings. Provided sustainable design consulting for approximately 48 projects in China, including projects whose designs met one- or two-star green building requirements. Also wrote the architectural section of the firm's internal BIM standards and, from

2013 to 2017, compiled and edited an annual brochure showcasing the architectural consulting division's selected projects.

Huawei Fuling Cloud Computing Data Center, Phase I | Chongqing, China | 2017

Architectural Design and Site Planning Lead | Supervising Architect: Changli Cui

- Led design from concept through construction completion and represented the design team on site.
- The project met Chongqing's Silver-level green building requirements.

Hangzhou Iron & Steel Group Cloud Data Center Retrofit | Hangzhou, China | 2017

Architectural Designer | Supervising Architect: Ruoyan Hu

- Worked on the competition proposal and subsequent design development for the conversion of an industrial site into a cloud data center.

China Mobile Xiamen Campus | Xiamen, China | 2016

Architectural Designer | Supervising Architect: Changli Cui

- Designed the site plan and façades for the competition proposal, adjusting the folded glazing to suit building orientation and site constraints.

China (Hangzhou) Cross-Border E-Commerce Industrial Park | Hangzhou, China | 2015

Architectural Designer | Supervising Architect: Changli Cui

- Developed the site plan and designed the façades as part of the team that won the campus master planning competition.

China Telecom Qingdao Cloud Computing Base, Phase I and Campus Master Plan | Qingdao, China | 2015

Phase I Architectural Design Lead, Site Planning, and Energy-Efficiency Consulting | Supervising Architects: Ruoyan Hu and Changli Cui

- Helped develop the campus master plan, led Phase I design from concept through construction documents, and represented the architectural team during construction.

China Telecom Chongqing Cloud Data Center, Phase I | Chongqing, China | 2014

Sustainable Design and Site Planning Lead, Architectural Designer | Supervising Architects: Ruoyan Hu and Changli Cui

- Prepared construction documents and coordinated with the client and construction team.
- The design met China's two-star green building requirements and won first place in the 2017 Zhejiang Excellent Communication Engineering Construction Project Award.

Huaxin Design Institute, New Binjiang Office Complex | Hangzhou, China | 2013

Architectural Designer, Site Planning and Sustainable Design | Supervising Architect: Jun Jin

- Coordinated architectural design with interior designers and structural, mechanical, electrical, plumbing, and process engineers on Huaxin's first full implementation of BIM across design disciplines.

China Telecom Shaoxing Textile City Hub Building | Shaoxing, China | 2011

Architectural Designer, Site Planning and Sustainable Design | Supervising Architect: Ruoyan Hu

- Served as the firm's on-site design representative from schematic design through construction.
- Helped introduce BIM-based design verification at Huaxin through this project.
- The project received the Qianjiang Cup Award in 2015.

Selected Student Design Projects

CITY ARTery | Urban Design Competition for Students, Texas Chapter of the American Society of Landscape Architects (TXASLA) | 2025

- Led the architectural design on an interdisciplinary urban design team.
- Student Merit Award, TXASLA.

Pioneer Promenade | Urban Design Competition for Students, TXASLA | 2024

- Led the architectural design on an interdisciplinary urban design team.
- Student Merit Award, TXASLA.

Khuoi Ky Houses | U.S. Department of Energy Solar Decathlon Design Challenge | 2023

- Led the joint design team from Texas A&M University and Hanoi University of Civil Engineering under the supervision of Dr. Liliana O. Beltrán.
- Fourth Place (Attached Housing Division) and Team Spirit Award.

Post-Anthropocene | Pavilion of Humanity Competition, Buildner | 2020

- Team lead under the supervision of Dr. Omar Al-Hassawi, Washington State University.
- Competition finalist.

Treehouse in Urban | Graduate Design Studio II, Washington State University | 2020

- Master of Architecture final design project exploring sustainable timber construction.
- Received The Book Award.

Transforming Housing | Hack-A-House Competition | 2019

- Led a team in a one-day housing design competition co-hosted by Washington State University and the University of Idaho.
- Received the Honor Award.

Inflatable Structure for Children | Advanced Architectural Design Studio II, Washington State University | 2019

- Best in Show Award, AIA Spokane Design Awards.

Potlatch Jr.-Sr. High School Project | Advanced Architectural Design Studio I, Washington State University | 2018

- Led the architecture team in collaboration with interior design students.
- Awarded Third Place in Arts & Education Sciences at the 2019 GPSA Research Exposition.

Additional Education, Professional Qualifications, and Technical Skills

Additional Education

Sustainable Design Camp | Kyushu University, Japan | 2023

- Studied sustainable design in Japan and the CASBEE building assessment system through coursework, design projects, architecture firm visits, and field studies of traditional and contemporary buildings.

Diploma of Horticulture (Landscape) | Melbourne Polytechnic, Australia | 2010

Diploma in Landscape Technology | Hangzhou Polytechnic University, China | 2010

Professional Qualifications

Professional Titles in Architectural Design | China

Intermediate Engineer | 2018

Assistant Engineer | 2014

Professional Training & Certifications

SBSE Retreat | Society of Building Science Educators and the University of Arizona | 2024

Participated in discussions on teaching building science and a field visit to Biosphere 2.

LEED Green Associate Exam Study Session | Gensler | 2021

Building Code Training on Fire Protection Design | China Association of Construction Engineering | 2016

Training in Green Building and Building Energy Efficiency | Chongqing Municipal Commission of Urban-Rural Development | 2016

Professional Memberships

American Solar Energy Society (ASES) | 2026–Present

International Building Performance Simulation Association (IBPSA) | 2024–Present

Society of Building Science Educators (SBSE) | 2024–Present

Illuminating Engineering Society (IES) | 2022–Present

American Institute of Architecture Students (AIAS) | 2020–Present

Software used in Research, Teaching, Consulting

Daylighting and spectral analysis | ClimateStudio, Radiance, Dynamic Daylight, ALFA, Lark Spectral Lighting, HDRscope, Daylight Visualizer

Building energy simulation | HEED, EnergyPlus, OpenStudio, DesignBuilder, IES VE, Sefaira, cove.tool, SBEED

Building information modeling, parametric design, and visualization | Revit, Rhino, Grasshopper, Ladybug Tools, Honeybee, SketchUp, Enscape

Building envelope and fenestration analysis | LBNL WINDOW, THERM, COMFEN, RESFEN, Optics, OPAQUE. Glazing databases include IGDB and CGDB.

Climate analysis and energy code compliance | Climate Consultant, COMcheck

Architectural Photography and Documentation

Developed a personal collection of architectural photographs documenting daylight, materiality, and spatial experience through visits to buildings in Asia, Europe, the Middle East, and Australia. The collection provides visual references for design exploration and potential use in architectural teaching and research.

Thailand (2016), Turkey (2012), United Arab Emirates (2014). Japan (2015, 2016, 2018, 2023), China (2019, 2020, 2023, 2025), Australia (2025)