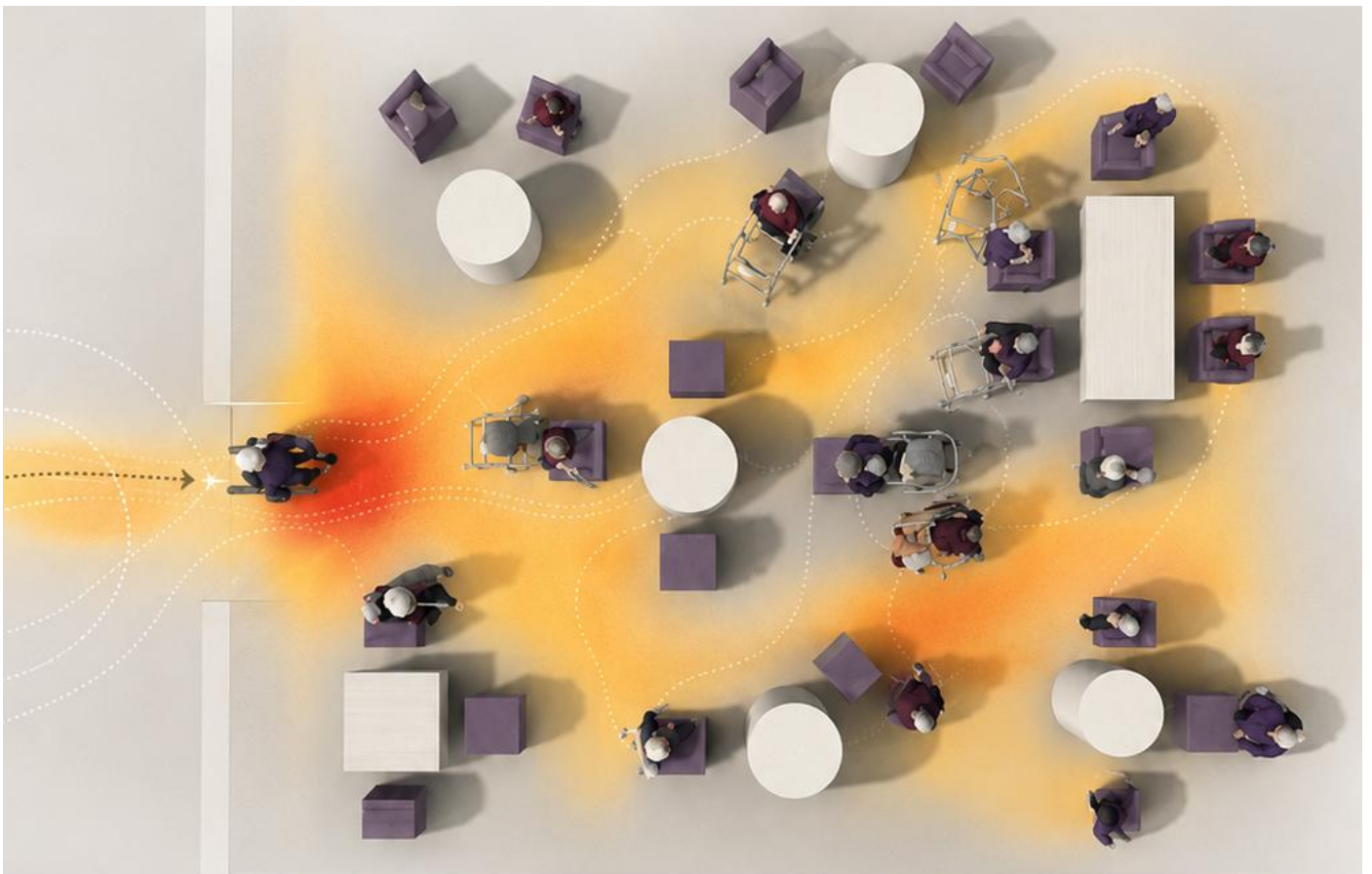


YOMNA EL-GHAZOULY

Academic Portfolio

Inclusive Spatial Behavior | Design Evaluation | Architecture + Participation



Selected research, teaching, and design work on inclusive spatial experience, aging, participation, and computational design evaluation

PhD Candidate, Computational Media Design
University of Calgary

yomna.elghazouly@ucalgary.ca | [Google Scholar](#) | [ORCID](#) | [LinkedIn](#) | [Website](#)

Portfolio Overview

This portfolio brings together research, teaching, and selected design work around one agenda: translating lived spatial experience into design evidence for inclusive architecture.

Section	Focus	Pages
01 Research	Inclusive spatial behavior, older adults, digital human modelling, VR, Unity-based evaluation	3–17
02 Teaching	Design studio, accessibility, participation-led architecture, visualization, game engines, critique	18–25
03 Design + Practice	Selected architectural work connecting narrative, adaptive reuse, experience, and computation	26–30
Contact + Profiles	Website, Google Scholar, ORCID, LinkedIn	31

PARTICIPATION AND SPATIAL COMFORT AS DESIGN EVIDENCE

Translating lived spatial experience into architectural methods

Where Participation Happens

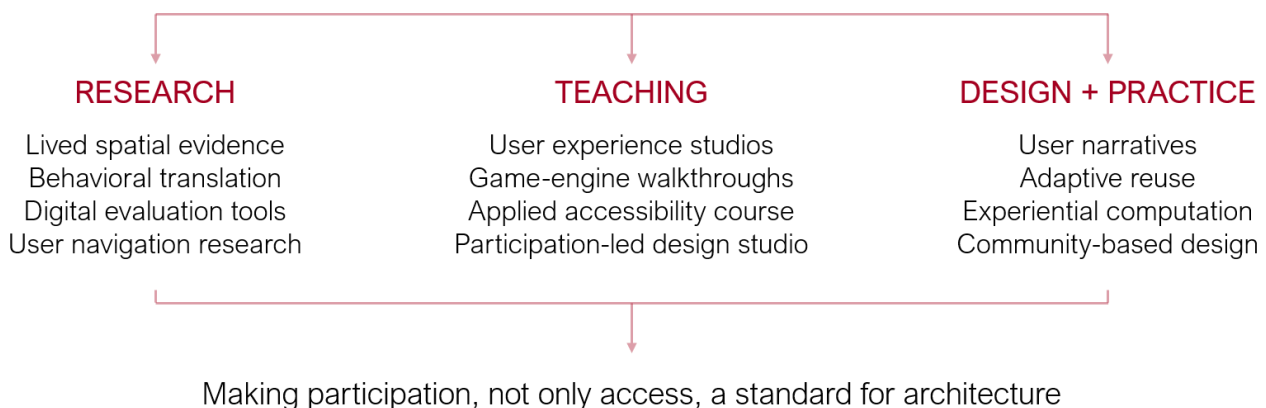
interiors | routes | thresholds | waiting areas | community spaces

What Participation Requires

comfort | visibility | hearing | rest | orientation | social choice | dignity

How Participation Can Be Evaluated

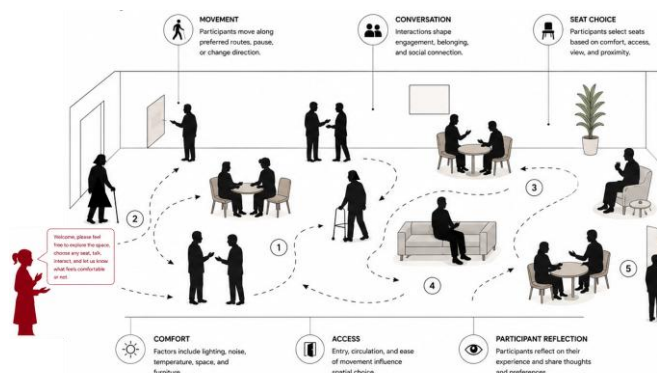
participatory methods | DHMs | VR/Unity | simulation



PART 1: RESEARCH PORTFOLIO

Translating lived spatial experience into design evidence

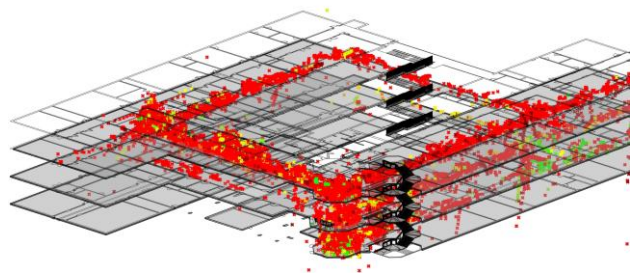
This section presents the methods, digital tools, and evaluation outputs through which I study how people move, pause, choose, orient, interact, adapt, and participate in everyday environments.



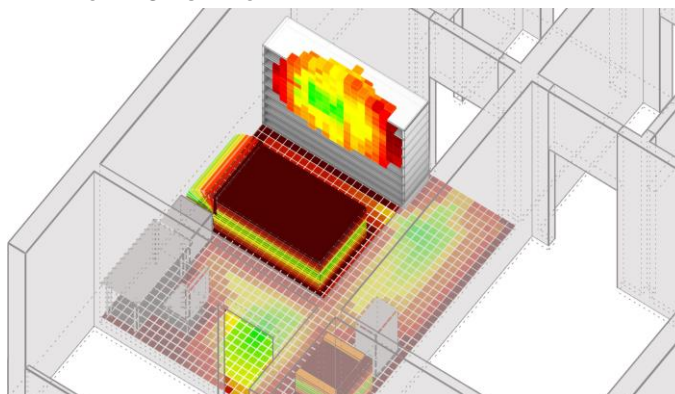
PARTICIPATORY METHOD



BEHAVIORAL SIMULATION



USER NAVIGATION



COMFORT EVALUATION

From participatory observation to behavioral simulation, navigation analysis, and digital comfort evaluation.

FEATURED WORK

PhD SpaceScript Method

Participatory method for older adults' lived spatial experience

PhD Digital Tool

Inclusive pre-occupancy evaluation for shared interiors

Master's DHM Project

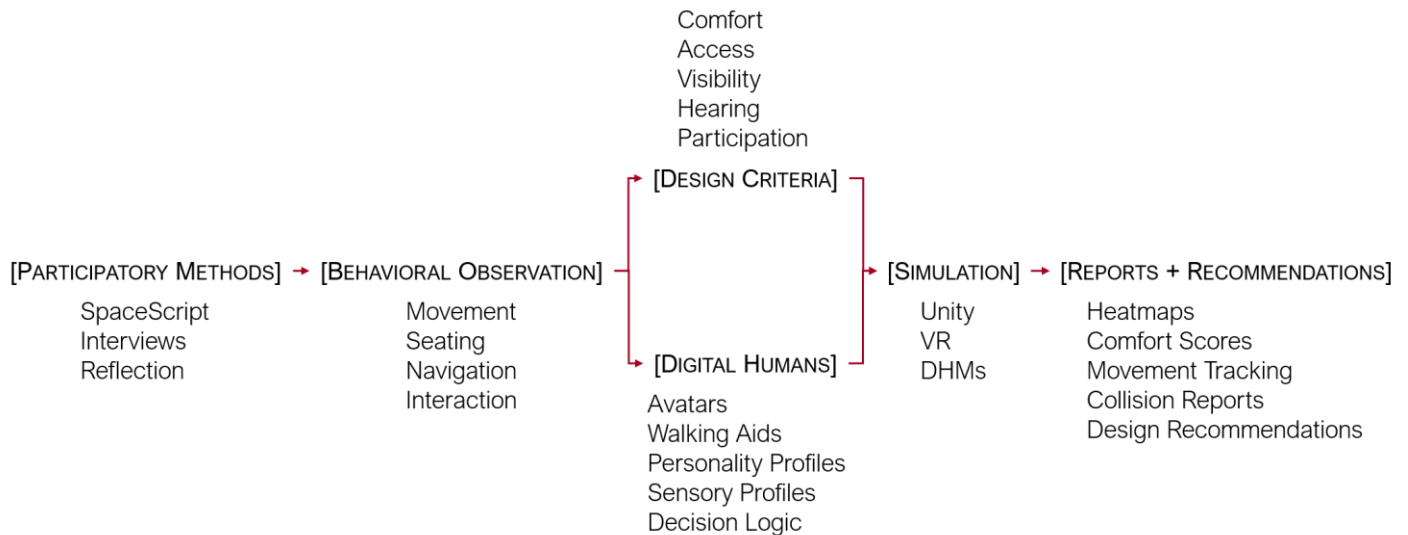
Ergonomic comfort evaluation and design recommendations

VR Campus Navigation

Wayfinding, gaze behavior, and spatial decision-making

Research Identity: Inclusive Behavior-Based Spatial Design

My research investigates how everyday environments shape social participation, spatial decision-making, comfort, access, and belonging. I develop participatory and computational methods that help architects evaluate whether people can not only enter a space, but also use it with dignity, autonomy, comfort, and social connection.



Core Contribution

I translate lived spatial experience and observable behavior into architectural evidence for inclusive design.

Methods

Participatory research, embodied observation, spatial analysis, digital human modelling, VR, Unity, and simulation.

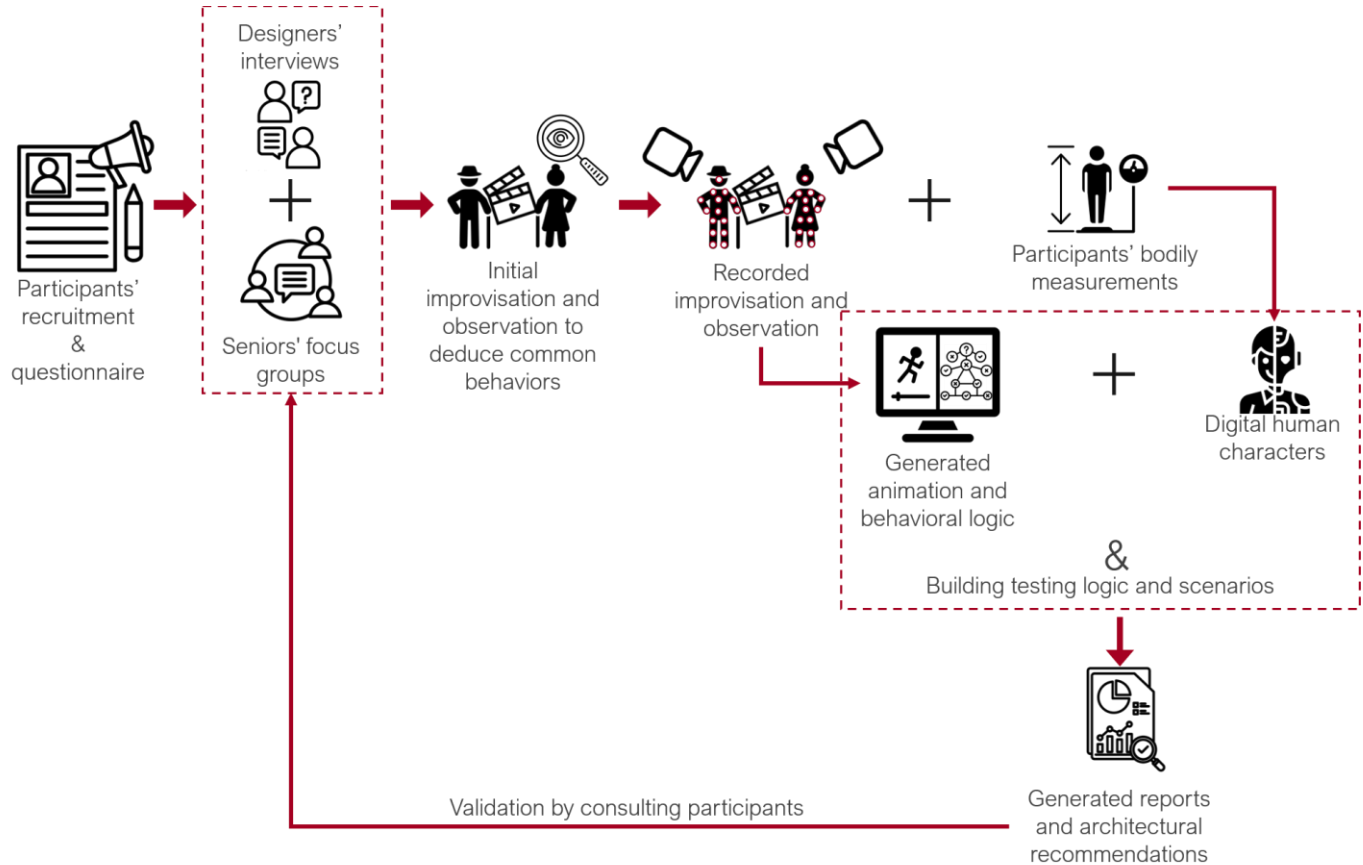
Design Relevance

Pre-occupancy evaluation, age-friendly design guidelines, spatial performance, and post-occupancy feedback loops.

PhD Project: Inclusive Pre-Occupancy Design Evaluation

From older adults' lived spatial experience to Unity-based simulation and design reports

This project develops an end-to-end framework for inclusive pre-occupancy design evaluation. It begins with participatory research with older adults, translates their spatial decisions into design criteria and computational logic, and implements these findings in a Unity-based tool that produces design reports and recommendations.



Problem

Spaces can meet accessibility requirements while still limiting participation, comfort, autonomy, and social dignity.

Evidence

Older adults' decisions about seating, visibility, hearing, circulation, orientation, and social interaction reveal design-relevant spatial needs.

Translation

Participatory and behavioral findings are translated into digital human profiles, decision rules, evaluation criteria, and simulation logic.

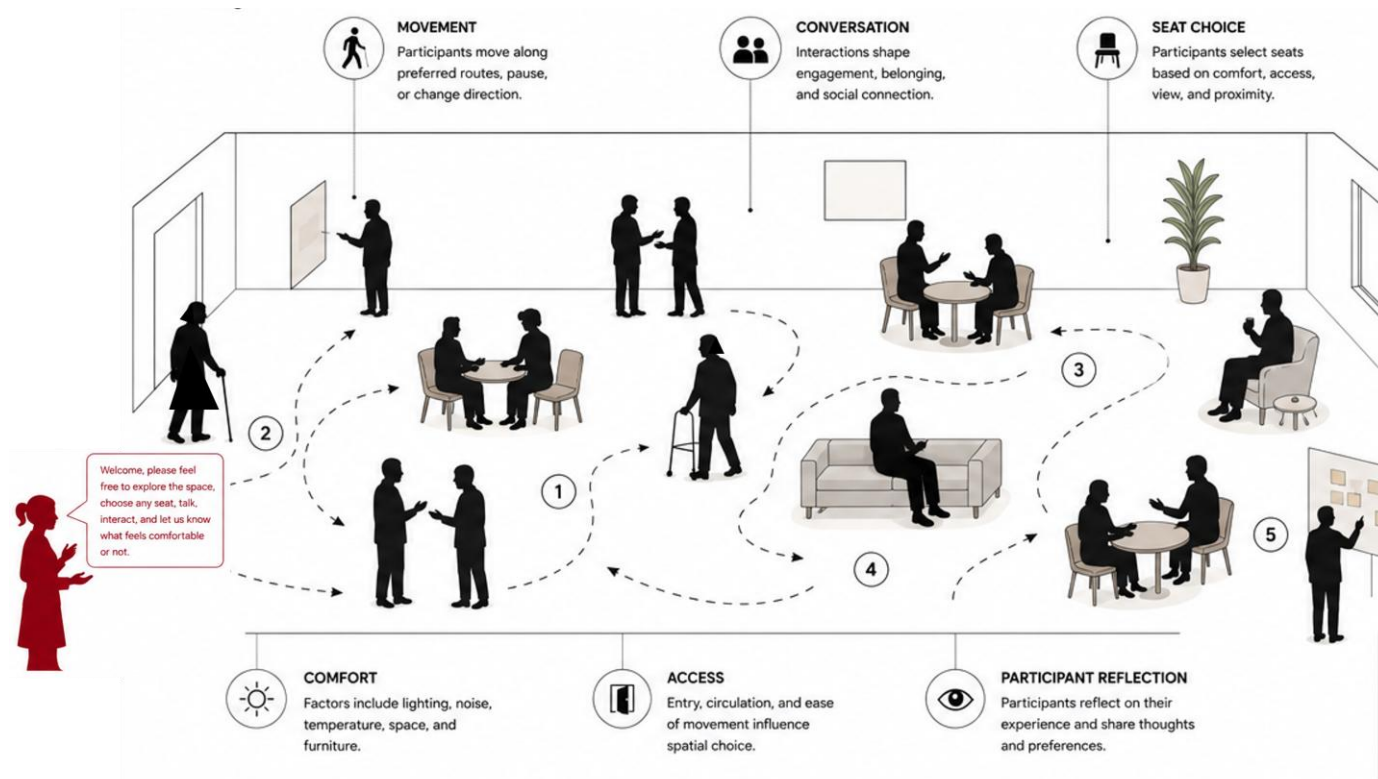
Output

A Unity-based evaluation workflow helps designers test inclusive spatial performance and generate design reports before construction.

PhD Method: SpaceScript | overview

A participatory method for observing older adults' lived spatial experience

SpaceScript is a participatory research method I developed to study older adults' lived spatial experience through movement, seating, conversation, reflection, and real-time spatial adaptation. Instead of asking participants only to describe past experiences or respond to fixed design scenarios, SpaceScript invites them to move through a flexible setup, choose and rearrange furniture, test comfort, interact with others, and explain their decisions as they unfold. This makes visible the spatial judgments, adaptations, discomforts, and social negotiations that conventional accessibility audits often miss.



Illustrative diagram of SpaceScript session logic: movement, conversation, seat choice, comfort, access, and participant reflection.

What SpaceScript captures

Movement routes
Seat choice
Comfort and discomfort
Visibility and hearing
Social interaction

How data is collected

Video observation
Spatial maps
Participant reflection
Facilitation notes
Post-exercise discussion

Why it matters

Reveals hidden barriers
Shows comfort over time
Captures adaptation
Centers participant agency
Feeds design criteria

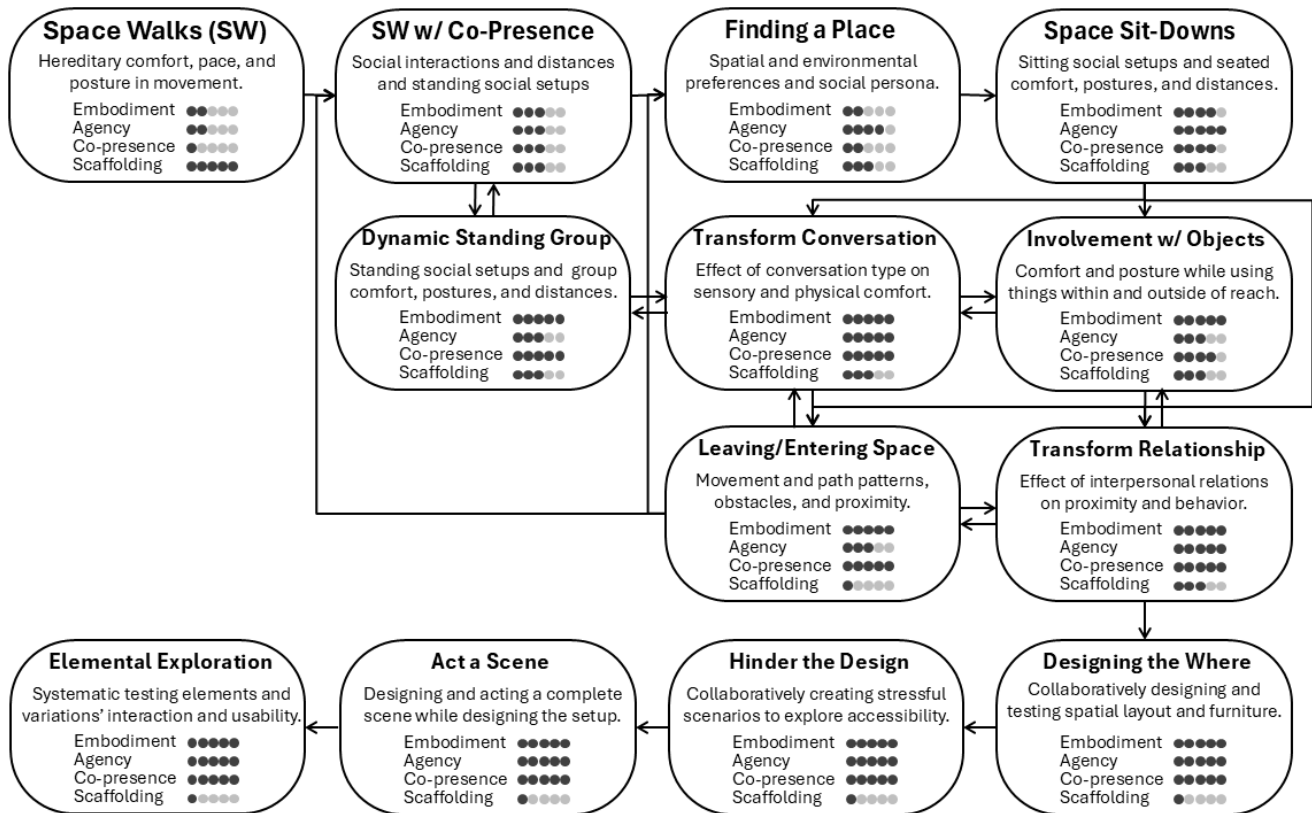
Related Publications and Manuscripts:

El-Ghazouly, Y., and Hansen, P. 2025. "SpaceScript: An Improvisational Method for Exploring Older Adults' Lived Spatial Experience in Participatory Research." *International Journal of Qualitative Methods* 24: 1609406925140780. <https://doi.org/10.1177/16094069251407801>

PhD Method: SpaceScript | exercise structure

From scaffolded exercises to design-relevant behavioral data

SpaceScript works through a scaffolded sequence of exercises that gradually increases participants' agency, embodiment, co-presence, and control over the environment. It begins with simple walking and orientation tasks, then moves toward seating, conversation, object use, entering and leaving space, and participant-led design testing. Each exercise generates behavioral and experiential evidence that can be translated into design criteria, digital human profiles, and simulation rules.



Scaffolded exercise structure showing how SpaceScript moves from walking and co-presence to seating, conversation, object use, spatial stress-testing, and participant-led design.

SCAFFOLDING LOGIC

01 Warm up

Space walks, pace, posture, co-presence

02 Occupy

Finding a place, sitting, proximity, comfort

03 Transform

Conversation, object use, relationship, social setup

04 Stress-test

Entering/leaving, hinder the design, redesign the setup

EVIDENCE PRODUCED

Movement Evidence

Routes, pauses, hesitation, scanning, re-orientation, walking-aid use

Comfort Evidence

Seat choice, posture, support, fatigue, reach, ease of standing

Social Evidence

Conversation, proximity, co-presence, joining, withdrawal, dignity

Design Translation

Design criteria, digital human profiles, decision rules, simulation scenarios

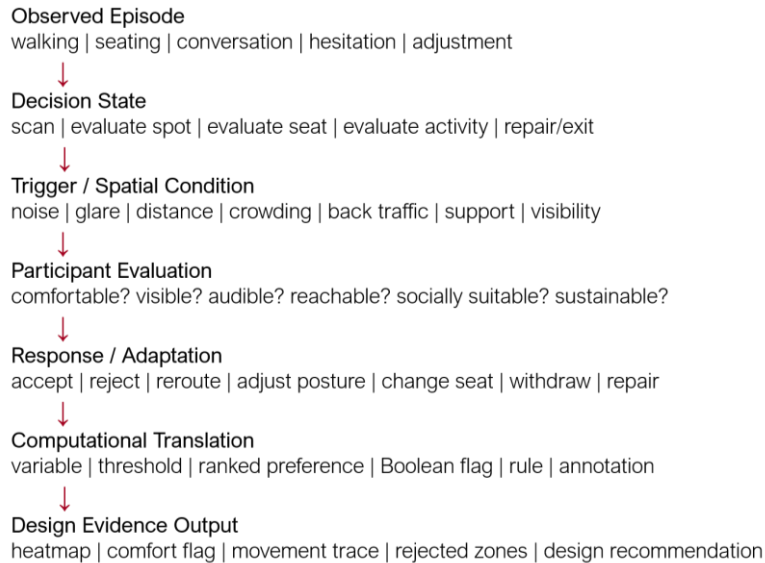
This structure turns participatory observation into evidence that can be translated into design criteria, digital human profiles, and simulation rules.

PhD Translation Logic: Lived Experience to Design Evidence

Converting participatory observations into design criteria, digital profiles, and simulation rules

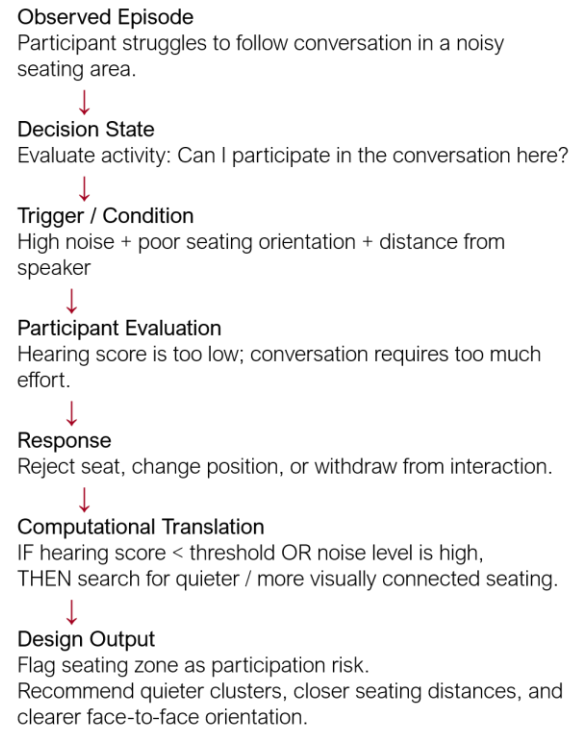
This stage illustrates how a single observed decision can be translated into design evidence. Rather than treating participant behavior as an isolated action, the translation process records the spatial context, trigger, evaluation, response, and outcome, then converts these into design criteria, digital profile attributes, simulation rules, and reportable design recommendations.

FULL TRANSLATION FLOWCHART OUTLINE



SAMPLE PATHWAY:

HEARING + CONVERSATION

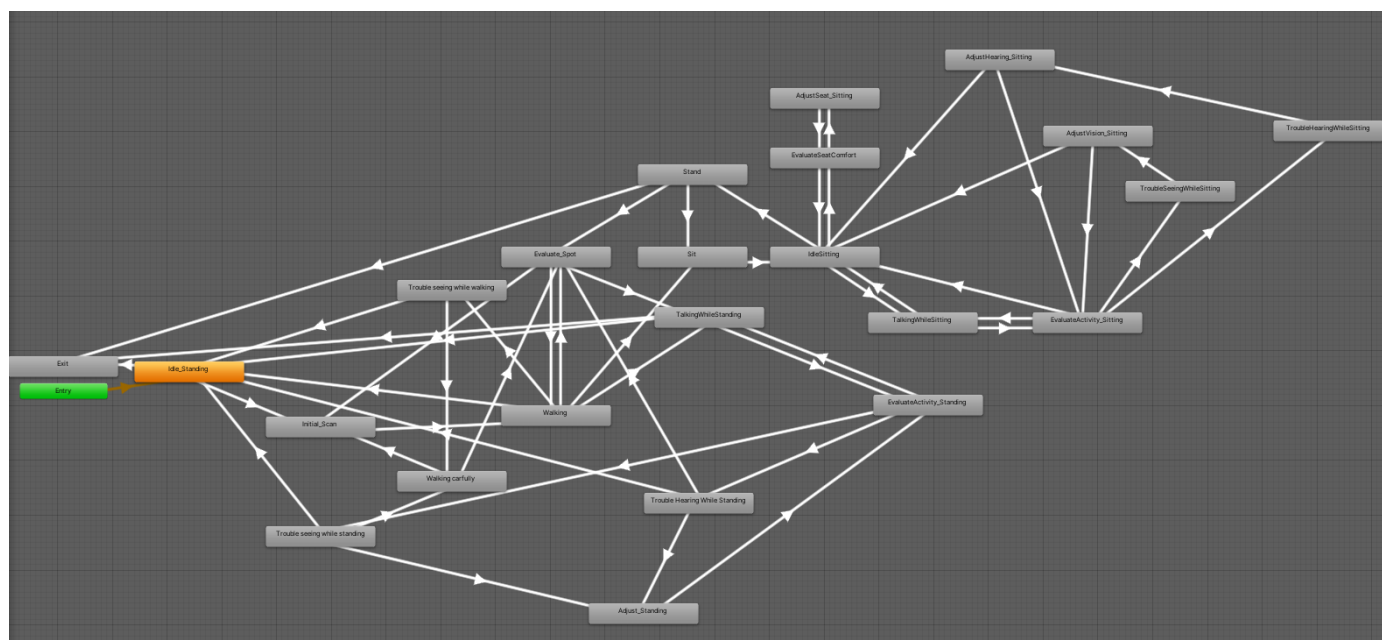


For readability, this page presents a simplified version of the larger behavior-to-evaluation flowchart. The full translation framework, including the detailed coding structure, decision states, and rule logic, is developed in the related publication. The full flowchart makes participant reasoning traceable, allowing lived spatial experience to be translated into explainable simulation rules and design recommendations.

Related Publications and Manuscripts:

- El-Ghazouly, Y. 2026. "The Etiquette of Access: Cultural Press, Relational Accessibility, and the Embodied Negotiation of Belonging in Later Life." *Journal of Aging Studies* 76: 101407. [10.1016/j.jaging.2026.101407](https://doi.org/10.1016/j.jaging.2026.101407)
- El-Ghazouly, Y. 2026. "Provisional spatial fit in shared interiors: Older adults' adaptive spatial practices as architectural evidence." *Archnet-IJAR: International Journal of Architectural Research*. [Under Review]
- El-Ghazouly, Y., Maurer, F., 2027. Translating situated behavior into design evidence: An observation-based framework for older adults' spatial participation. *The Association for Computer-Aided Architectural Design Research in Asia (CAADRIA)* 2027. [Under Review]

This Unity-based tool translates participatory evidence into a pre-occupancy evaluation environment for shared interiors. Digital human agents with different mobility, sensory, comfort, and social profiles move through proposed layouts, evaluate routes and seating, respond to noise, glare, crowding, visibility, and support, and generate designer-facing outputs. The tool allows proposed spatial interventions to be tested before implementation and later updated through post-occupancy evidence.



Related Publications and Manuscripts:

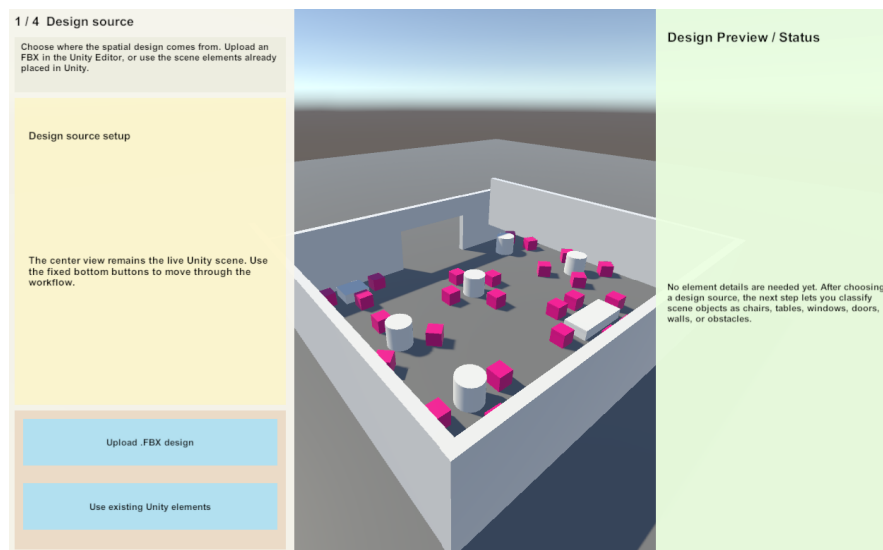
Planned Manuscript 2: Application of the Unity-based tool to assess architectural design projects and compare its design insights with conventional accessibility guideline review.

PhD Tool: Unity-Based Pre-Occupancy Evaluation | workflow

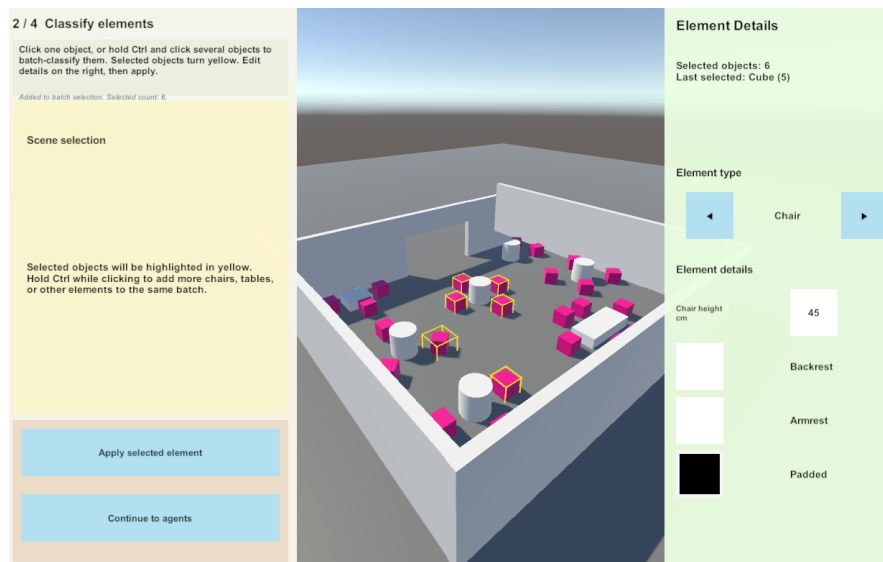
A designer-facing interface for setting up, running, and interpreting simulations

The tool guides designers through a four-step workflow: selecting or importing a spatial layout, classifying design elements, selecting participant-agents, and running simulations with report outputs.

This workflow makes the tool legible to architects by connecting spatial setup, participant-agent selection, simulation control, and report generation in one evaluation environment.



Designers begin by uploading a design model or using existing Unity scene elements



Chairs, tables, walls, doors, obstacles, and other spatial elements are classified so agents can interpret the environment.

3 / 4 Select agents

Choose participant-agents and enter the number of each. This yellow area can scroll because thumbnails need more room.

 Dion (77)	 Doreen (71)	 Heidi (76)
0	0	3
 Molly (73)	 Polly (75)	 Samantha (79)
0	1	0

Save selected agents

Back to elements

Agent Selection Details

Choose as many participants as you want to occupy your space.

Designers select participant-agents with different mobility, sensory, comfort, and social profiles.

4 / 4 Run simulation

Choose run settings on the left. Choose report outputs in the right panel. The simulation starts only when Run Simulation is pressed.

Run Settings

Number of runs

- 1 +

Simulation speed

- 1 +

Duration

Run simulation

Generate reports now

Report Outputs



Ergonomic comfort



Collision count



Spatial usage heatmap



Visibility score

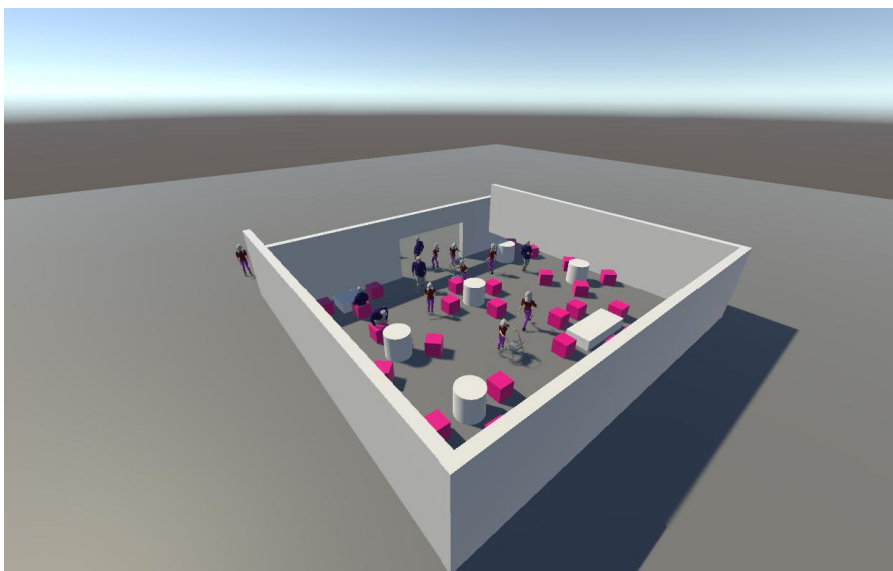


Hearing score

These options are stored in SimulationRunSettings and sent to the report bridge when the simulation starts.

The simulation runs with selected settings and generates report outputs such as ergonomic comfort, collision count, spatial usage heatmaps, visibility score, and hearing score.

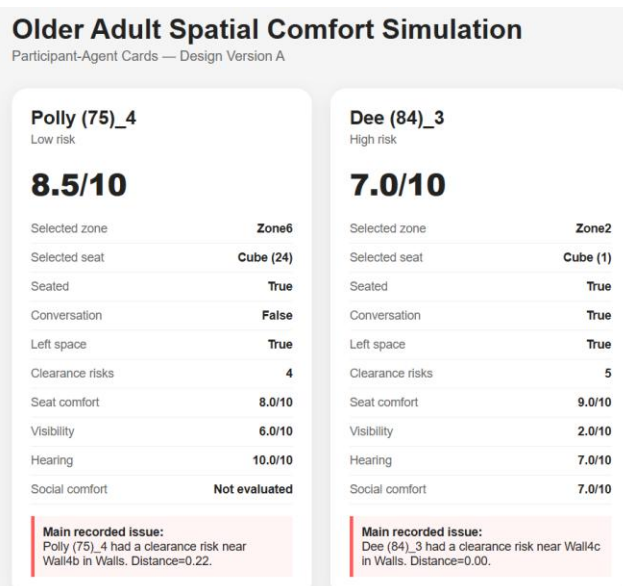
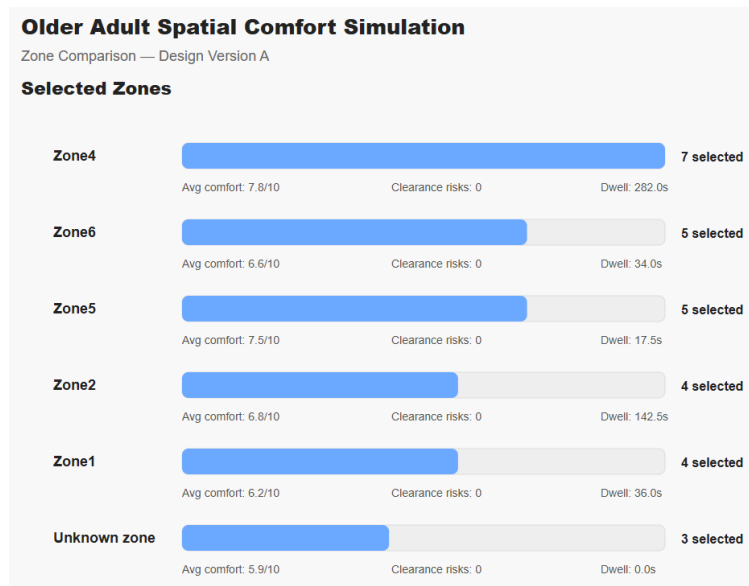
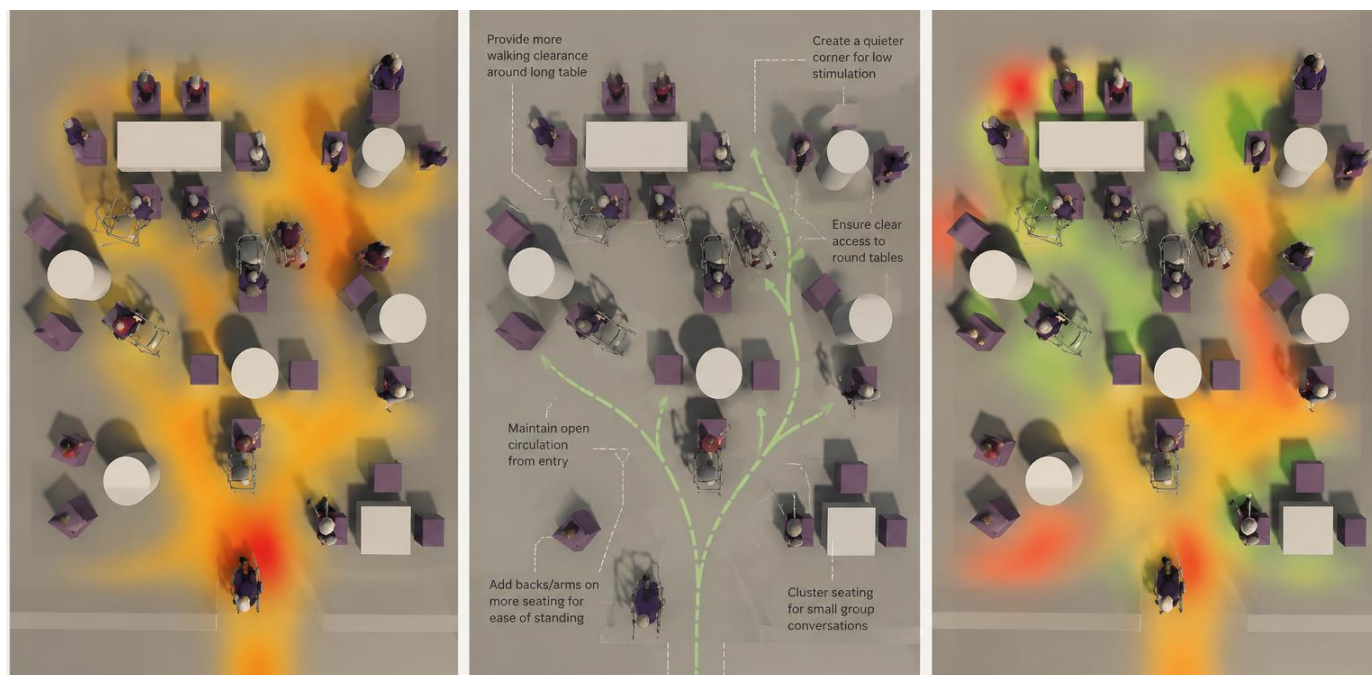
After the designer selects the simulation settings, the tool runs the simulation and generates the selected report outputs.



PhD Tool Outputs: Reports, Heatmaps, and Recommendations

Generating reports for identifying spatial problems and improving inclusive layouts

The tool produces designer-facing outputs that translate simulated behavior into spatial evidence. These outputs help identify where people move, pause, collide, reject seating, experience sensory discomfort, or lose opportunities for social participation. The goal is to support design decisions before construction and compare alternative layouts through evidence rather than assumption.



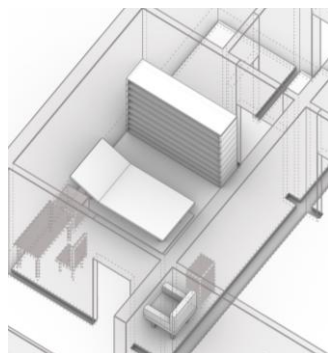
The reports show which areas are heavily used, avoided, congested, or under-supported by circulation. They identify problems related to seating comfort, visibility, hearing, crowding, support, and social participation.

These outputs allow designers to move from checking whether a layout meets minimum accessibility requirements to evaluating whether it supports comfort, dignity, and participation in use.

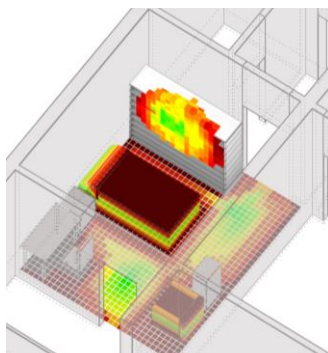
Master's Research: Digital Human Models for Ergonomic Interior Evaluation | overview

A digital human modeling framework for evaluating ergonomic comfort in interior layouts and furniture design

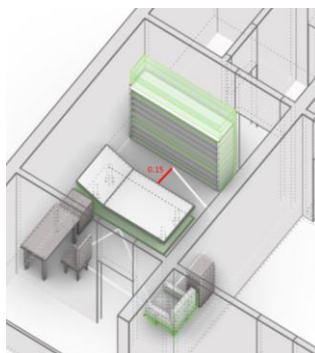
This project developed a digital evaluation framework for assessing ergonomic comfort in interior environments using digital human models. The workflow connected anthropometric data, posture libraries, furniture parameters, and interior layout variables to produce comfort scores, heatmaps, and design recommendations.



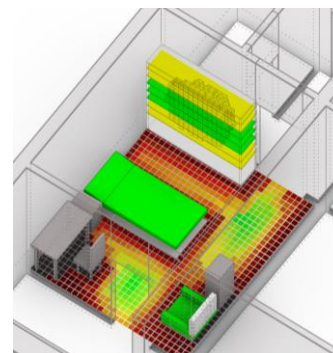
BASE CASE



COMFORT HEATMAP



DESIGN RECOMMENDATION



EDITED DESIGN EVALUATION

Problem

Standard ergonomic guidelines can miss how different bodies, mobility needs, and ranges of motion affect comfort in interior layouts and furniture.

Evidence

Digital human models of older adults tested how mobility aids, reach, posture, circulation, wardrobes, chairs, and beds affected comfort, collision risk, and independence.

Translation

Anthropometric data, joint ranges, postures, mobility aids, and use scenarios were translated into customized DHMs, ergonomic simulations, comfort scores, and heatmaps.

Output

A Rhino/Grasshopper and Human Builder workflow visualized comfort ranges, identified problematic zones, and generated design recommendations for more comfortable interiors and furniture.

Related Publications and Manuscripts:

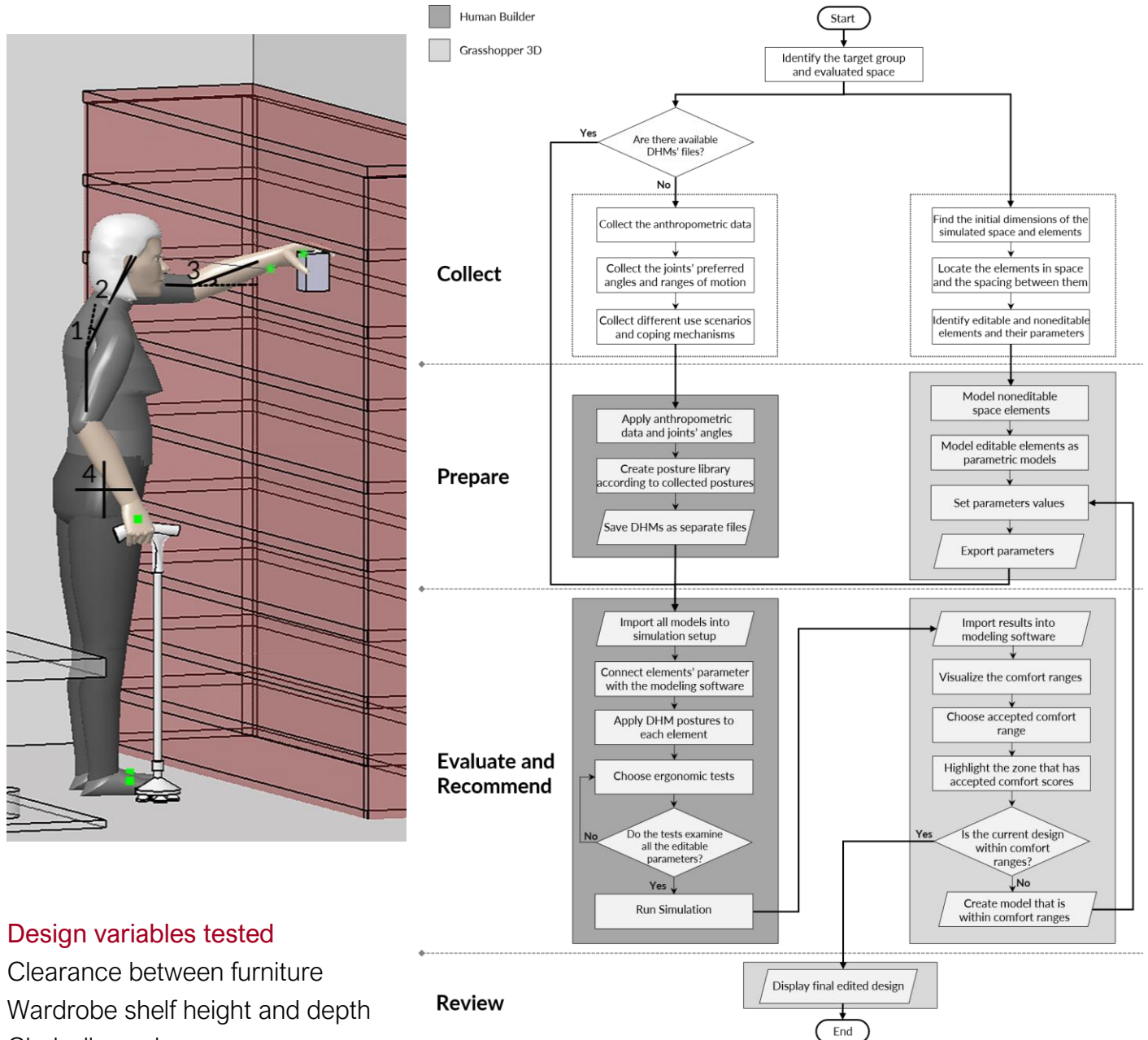
El-Ghazouly, Y., and El Antably, A. 2021. "Using Digital Human Models to Evaluate the Ergonomic Comfort of Interior Layouts and Furniture Design." *Technology | Architecture + Design* 5(2): 245–259.

<https://doi.org/10.1080/24751448.2021.1967061>

Master's Research: Digital Human Models for Ergonomic Interior Evaluation | workflow

Connecting user data, digital human models, ergonomic tests, and design recommendations

This page shows how the MSc framework connects user-specific ergonomic data with interior design variables. The workflow moved from collecting anthropometric and mobility data, to creating digital human models, testing posture, reach, clearance, and collision, and then translating the results into comfort visualizations and design recommendations.



Design variables tested

Clearance between furniture
Wardrobe shelf height and depth
Chair dimensions
Bed height and support
Walking-aid movement space
Collision and maneuvering risk

The framework made ergonomic comfort visible as design evidence by showing how specific furniture dimensions and layout decisions affected different users' comfort, reach, movement, and independence.

VR Campus Navigation | overview

Studying wayfinding, gaze, and spatial decision-making in immersive campus environments

As Head of Architectural Research in the VR Lab, I developed a virtual replica of a university campus building to study how students navigate complex spaces and interpret signage systems. The campus was modeled in Revit using photographic site surveys to reproduce architectural details, materials, signage, and spatial cues. The model was then implemented in Unity with interactive VR elements and agents to support controlled wayfinding experiments.



Problem

Complex university buildings can cause wayfinding difficulty when circulation, signage, room numbering, visual cues, and decision points are unclear.

Evidence

Eye-tracking, motion-tracking, gaze fixation, movement paths, and wayfinding tasks revealed how students interpreted spatial cues.

Translation

Revit models, site photographs, signage, and spatial layouts were translated into an immersive Unity environment for controlled navigation experiments.

Output

The VR workflow identified confusing junctions, reorientation hubs, signage dependency, route changes, and spatial cues affecting wayfinding.

Related Publications and Manuscripts:

El-Khouly, T., Eldiasty, A., El-Ghazouly, Y., Abubakr Ali, L., and Ali Mustafa, F. **2026**. "Visibility Is Not Enough: Wayfinding Loss, Re-orientation, and the Integration–Choice Conflict in Multi-Storey Buildings." 15th International Space Syntax Symposium (SSS15), Malaysia.

VR Campus Navigation | workflow

VR-based study of wayfinding, gaze behavior, and spatial decision-making

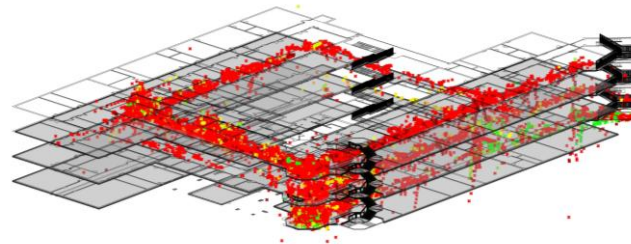
Students experienced the simulation through HTC Vive headsets and a $3 \times 3 \times 3$ CAVE environment, while eye-tracking and motion-tracking captured gaze behavior, movement paths, reorientation moments, and navigational decisions. The project connected immersive simulation with spatial behavior analysis to inform evidence-based wayfinding and environmental design.



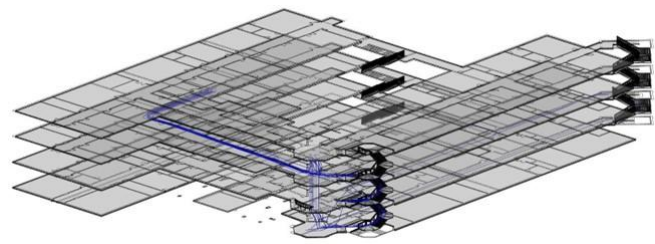
IMMERSIVE VR



CAVE ENVIRONMENT



GAZE FIXATION



MOVEMENT TRAJECTORIES

Key Findings

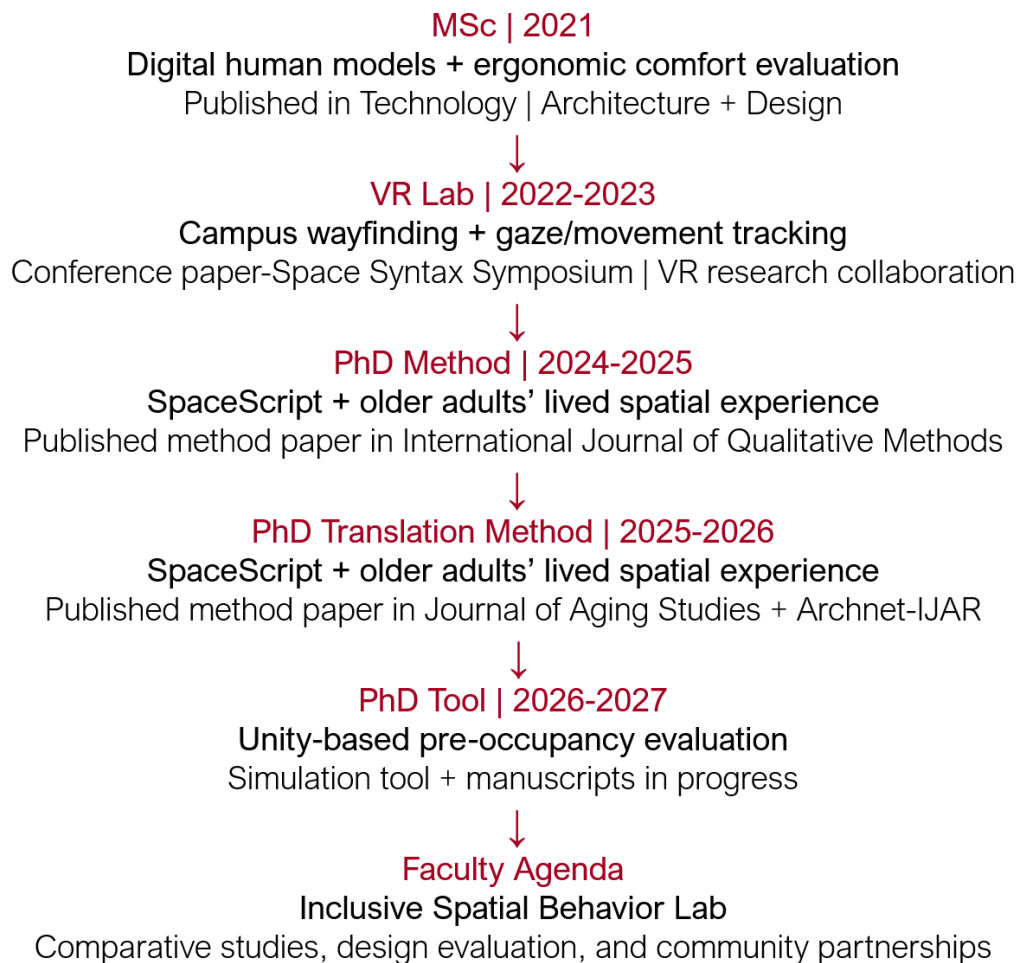
- Central lobbies acted as reorientation hubs.
- T-junctions created decision-making difficulty.
- Linear corridors were easier but still needed visual markers.
- Participants relied more on signage and room numbers when unfamiliar.
- Movement and gaze data revealed where spatial clarity failed.

The project shows how immersive environments can support evidence-based wayfinding research by connecting gaze behavior, movement paths, and spatial configuration to design decisions.

Research Trajectory: Outputs and Future Agenda

From published methods to an inclusive spatial behavior research agenda

My research agenda has developed through connected projects on participatory methods, digital human modeling, VR wayfinding, adaptive spatial practices, and simulation-based design evaluation. These outputs define a long-term research trajectory focused on inclusive spatial behavior, participation, and evidence-based architectural evaluation.

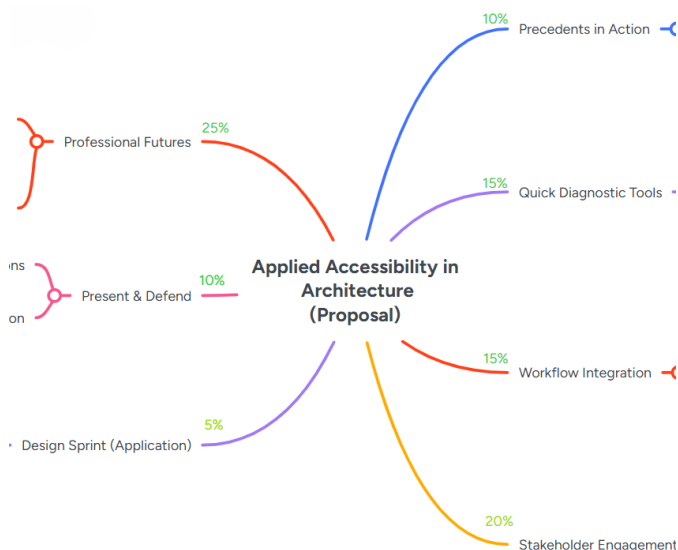


ACROSS THESE PROJECTS, THE COMMON THREAD IS TRANSLATING HUMAN SPATIAL EXPERIENCE INTO DESIGN EVIDENCE.

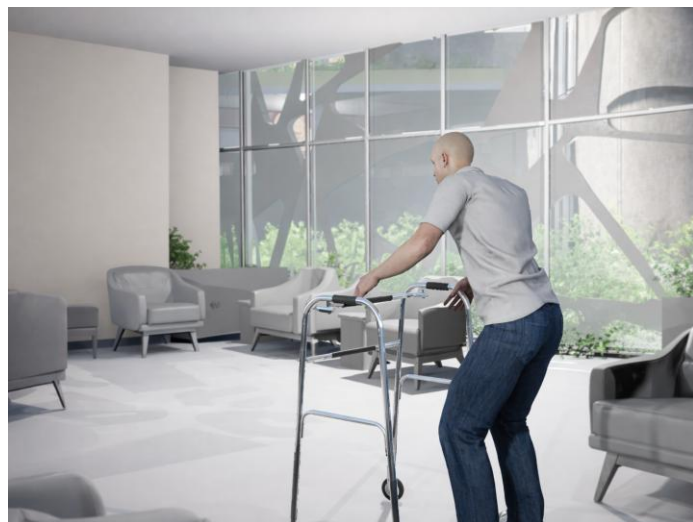
PART 2: TEACHING PORTFOLIO

Teaching design as evidence, experience, and participation

My teaching connects architectural creativity with evidence, accessibility, participation, and digital design methods. I help students understand design not only as a formal or technical process, but as a way of shaping human experience, movement, comfort, interaction, and belonging.



APPLIED ACCESSIBILITY COURSE



STUDENT WORK | ACCESSIBILITY TESTING

STUDENT WORK | GAME-ENGINE WALKTHROUGH



JURY INVITATIONS

TEACHING THEMES

Design as Experience

Students learn to evaluate how spaces are moved through, used, felt, and negotiated by different people.

Accessibility as Design Thinking

Accessibility is taught as a creative and ethical design method, not only as code compliance.

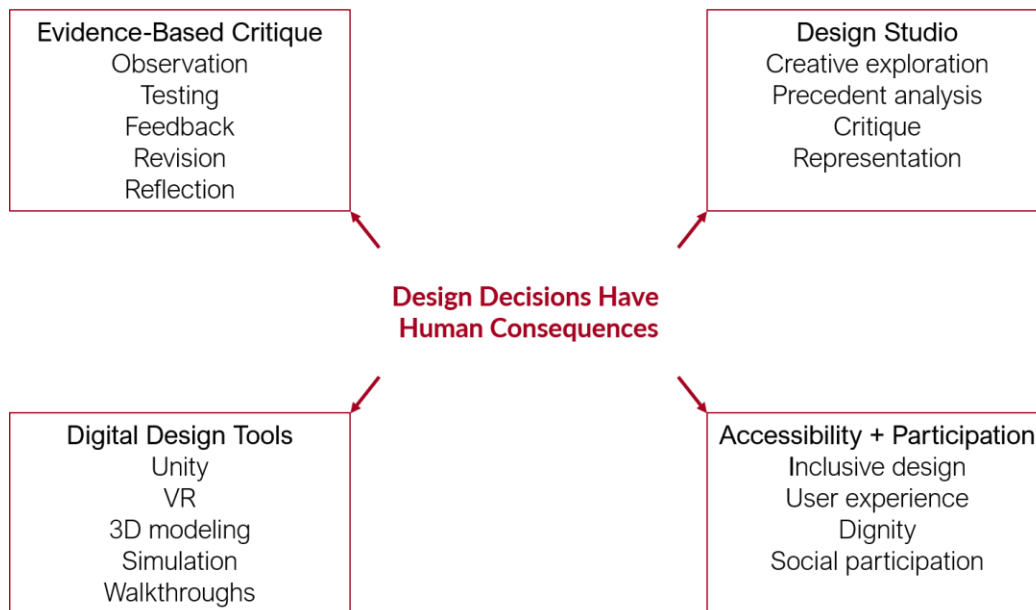
Digital Tools as Critique

VR, Unity, simulation, and visualization help students test design consequences before construction.

Teaching Approach: Experience, Evidence, and Inclusive Design

Connecting studio creativity with human experience, accessibility, and digital evaluation

My teaching connects architectural creativity with human experience. Across design studios, accessibility courses, visualization workshops, and digital design environments, I help students understand how spaces are used, who they include or exclude, and how design decisions affect comfort, movement, participation, and dignity.



Studio Teaching

Concept development, precedent analysis, critique, representation, and technical problem-solving.

Digital Design

Unity, VR, BIM modeling, 3D modeling, spatial walkthroughs, and design-thinking methods.

Inclusive Pedagogy

Clear expectations, staged feedback, peer discussion, revision, accommodations, and respectful learning environments.

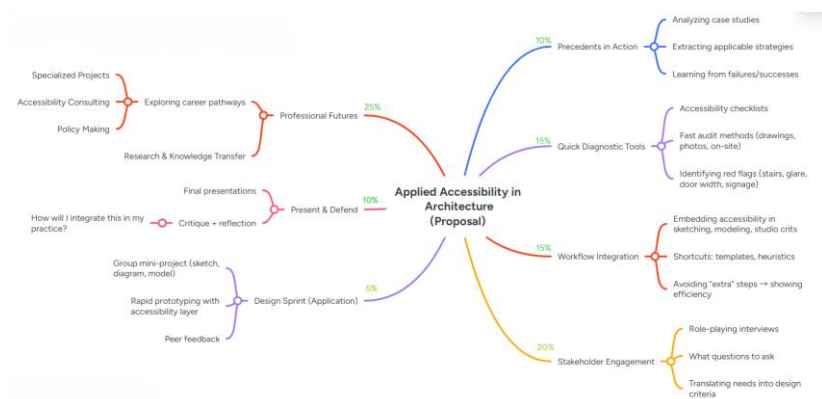
Across these teaching areas, my goal is to help students move from designing objects and forms to designing spatial experiences that can be tested, discussed, and improved.

Sample Course 1: Applied Accessibility in Architecture

A block-week studio on accessibility as a creative design method

This proposed block-week course introduces upper-year architecture students to inclusive and age-friendly design workflows. Rather than treating accessibility as a checklist, the course teaches students to identify barriers, translate user perspectives into design criteria, and propose spatial interventions that improve participation, dignity, comfort, and social inclusion.

Status:	Proposed course / sample syllabus
Level:	Upper-year undergraduate architecture
Format:	Intensive block week; studio-seminar-workshop
Delivery:	In-person with field observation
Prerequisite:	Introductory design studio or permission
Core focus:	Inclusive and age-friendly design workflows
Final output:	Collaborative accessibility design sprint



ASSESSMENT OVERVIEW

- Precedents in Action — 10%**
Case-study analysis of accessibility strategies.
- Accessibility Audit — 15%**
Annotated visual audit of a real or familiar space.
- Stakeholder Role-Play — 20%**
Translate stakeholder needs into design criteria.
- Workflow Integration — 15%**
Create a checklist, template, heuristic, or critique guide.
- Collaborative Design Sprint — 25%**
Redesign a small social space through inclusive design.
- Present and Defend — 10%**
Explain design trade-offs and accessibility goals.
- Professional Futures Reflection — 5%**
Reflect on accessibility-related career pathways.

BLOCK-WEEK SCHEDULE

Day	Topics and Activities	Assessment Milestones
Day 1 - Accessibility as Design Method	Course framing; accessibility beyond compliance; case-study analysis; introduction to quick diagnostic tools.	Precedents in Action assigned and discussed.
Day 2 - Observation and Audit	Guided observation methods; identifying physical, sensory, cognitive, and social barriers; visual communication of findings.	Accessibility Audit due; Stakeholder Role-Play Round 1 begins.
Day 3 - From Needs to Design Criteria	Translating audit findings and stakeholder perspectives into design criteria; schematic redesign; feedback round.	Stakeholder Role-Play Round 2; Workflow Integration Exercise introduced.
Day 4 - Workflow Integration and Design Sprint	Embedding accessibility into sketching, modeling, studio critique, and design development; group design sprint begins.	Workflow Integration Exercise due; design sprint desk critiques.
Day 5 - Present, Defend, and Professional Futures	Final design development; presentations and critique; guest lecture/panel on accessibility practice, certification, policy, consulting, and research.	Final Design Sprint, Present and Defend, and Professional Futures Reflection due.

Sample Course 2: Participation-Led Architecture Design Studio

Designing for social participation, spatial experience, and game-engine testing

This proposed studio course introduces participation-led architecture as a design approach that begins with the social experiences a space should support. Students learn to observe how people sit, move, gather, withdraw, converse, eat, wait, and orient themselves, then translate these observations into programs, spatial concepts, indoor-outdoor relationships, and game-engine walkthroughs.

Status:	Proposed course / sample syllabus
Level:	Upper-year undergraduate architecture
Format:	Semester-long design studio
Delivery:	In-person with field observation
Prerequisite:	Introductory design studio or permission
Core focus:	Designing for social participation and spatial experience
Final output:	Participation-led design project with game-engine walkthrough



Assessment structure simplified for portfolio overview.

ASSESSMENT OVERVIEW

Precedent Participation Critique — 15%
Group analysis of recognized projects, user reviews, participation, exclusion, and design lessons.

Situated Participation Field Study — 15%
Group field study testing conversation, eating, sitting, observing, and participation barriers in a city building.

Participation-Focused Program Brief — 10%
Individual program organized around activities, users, relationships, and participation modes.

Indoor + Outdoor Proposal — 15%
Early proposal for one indoor and one outdoor participatory space.

Game-Engine Walkthrough Prototype — 25%
Navigable model with accessible indoor space, sound, lighting, avatar testing, and invited juror feedback.

Final Participation-Led Design Project — 20%
Final architectural proposal presented through drawings, diagrams, models, walkthroughs, and participation argument.

COURSE SCHEDULE

Week	Topics and Activities	Assessment Milestones
W1 - Participation as a design driver	Instructor lecture on why participation matters, how it can be observed, and how it shapes architectural decisions. Launch Assignment 1.	Assignment 1 begins.
W2 - Learning from precedents and real users	TA-led review of successful projects in terms of participation, followed by group precedent presentations. Students also conduct a situated field study in a city building.	Assignment 1 due; Assignment 2 field study.

W3 - Participation-focused programming	Students begin individual projects by defining activities, relationships, users, participation modes, and experiential goals. Desk critiques and program diagrams.	Assignment 2 due.
W4 - Massing, concept, and experiential intent	Studio work on massing alternatives, spatial hierarchy, threshold conditions, and design inspiration. One-on-one feedback and peer review.	Assignment 3 due. Concept studies in progress
W5- Indoor-outdoor participation proposal	Students develop a preliminary proposal for one outdoor and one indoor space. Collective peer review and structured discussion help test participation goals.	Assignment 4 due.
W6 - Digital modeling and game-engine workflow	Workshop/tutorial on preparing models for a game engine. Students begin importing massing/interior models and organizing walkable spaces.	Game-engine setup in progress.
W7 - Walkthrough prototype review	Students submit a game-engine prototype with at least one accessible indoor space, sound, lighting, and avatar-based walkthrough testing. Classmates test different avatars and an invited juror provides fresh feedback.	Assignment 5 due.
W8 - Developing participation sequences	Studio development of routes, thresholds, gathering zones, waiting/observing areas, seating, visibility, acoustic conditions, and movement sequences.	Design development.
W9 - Overlapping modes of participation	Students refine how different users can join, withdraw, observe, pass through, rest, eat, converse, and participate simultaneously.	Updated game-engine model.
W10 - Atmosphere, sound, light, and sensory experience	Focused review on lighting, sound, visual exposure, privacy, sensory comfort, and experiential testing inside the digital walkthrough.	Walkthrough testing notes.
W11 - Peer playtesting and iteration	Students test each other's spaces using different avatar/user scenarios and revise based on observed participation possibilities and barriers.	Peer testing summary.
W12 - Final representation and walkthrough rehearsal	Final desk critiques, presentation structure, participation argument, drawings, diagrams, and game-engine walkthrough rehearsal.	Final package in progress.
W13 - Final external jury	Students present their participation-led design proposals through drawings, diagrams, models, and live or recorded game-engine walkthroughs.	Assignment 6 due.

The course combines precedent research, situated field observation, participation-focused programming, spatial concept development, digital modeling, and game-engine walkthrough testing. Students begin by learning how participation can be observed and critiqued in existing buildings. They then translate these observations into an individual design project developed through studio critique, peer review, avatar-based testing, and external jury feedback. By the end of the semester, students will have gained hands-on skills in design critique, participation-focused programming, user-experience thinking, game-engine prototyping, and experiential design evaluation.

Selected Student Work: Designing for User Experience

Teaching students to test design decisions through avatars, movement, and scenarios

This page presents selected student work from design teaching and digital visualization contexts where students used avatars, walkthroughs, and user scenarios to test how architectural spaces are experienced. My teaching role focused on guiding students to connect design form with movement, accessibility, user experience, spatial atmosphere, and multiple user needs.



DESIGNING FOR OLDER ADULTS

Avatar-based testing of access, scale, and movement.



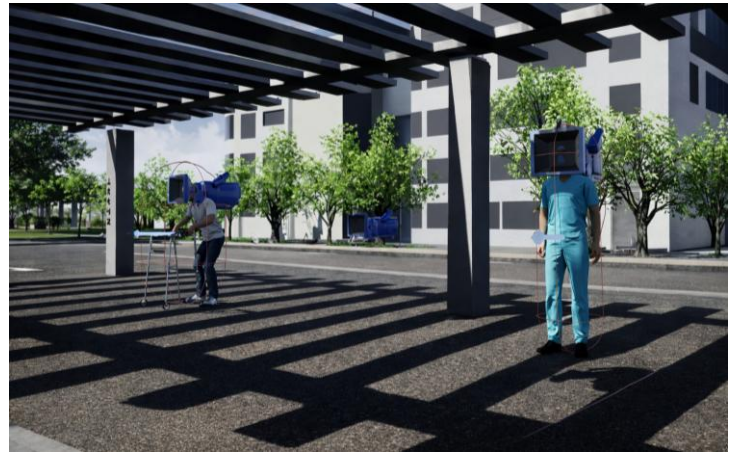
INTERIOR WALKTHROUGH TESTING

Exploring atmosphere, visibility, and spatial sequence.



USER EXPERIENCE IN EXTERIOR SPACE

Testing approach, arrival, scale, and building perception.



MULTIPLE USER OPTIONS

Comparing how different users move through the same design.

Teaching Role

- Guided students in user-scenario thinking
- Supported avatar-based spatial testing
- Encouraged critique beyond form and appearance
- Connected digital walkthroughs to accessibility and experience
- Helped students revise designs through feedback and reflection

These examples show how I use digital representation not only for presentation, but as a teaching method for evaluating how spaces are approached, entered, occupied, and experienced by different users.

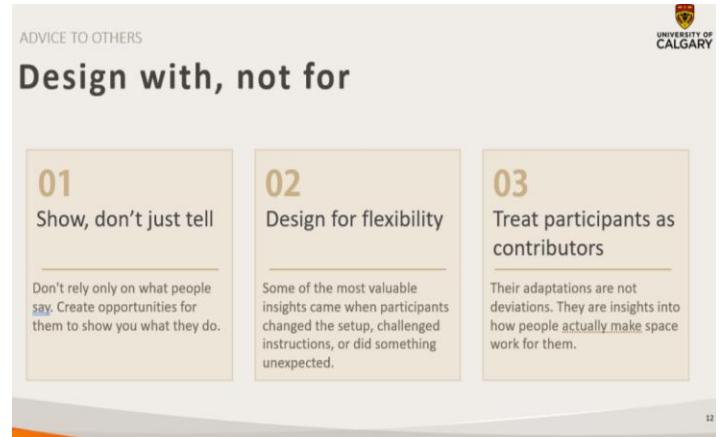
Invited Workshops, Critique, and Mentorship

Evidence of teaching beyond regular TA work through workshops, juries, writing support, and design mentorship

Beyond regular teaching assistant work, I have supported learning through invited workshops, design critique, academic writing sessions, and mentorship. These activities show my ability to teach across architectural design, computation, visualization, research communication, and spatial experience.



UNITY WORKSHOP | CLASS PROJECT



RESEARCH WITH/FOR OLDER ADULTS TALK

Introduction to academic writing Part 1: Essay structure

Yomna El-Ghazouly, MSc
Assistant lecturer at AUC and AASTMT
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ACADEMIC WRITING SERIES



IAAC MACAD JURY INVITATION

Invited Teaching

Unity-based spatial prototyping workshops for architecture, interior design, and furniture design professionals.

Design Critique

IAAC MaCAD jury participation, connecting concept, method, computation, representation, and spatial experience.

Research Communication

Presentations for community audiences, translating research findings into accessible discussion.

Mentorship

Support for students and junior architects through design review, visualization feedback, writing guidance, and project development.

Teaching Experience and Student Feedback

Evidence of teaching across design studios, digital methods, tutorials, workshops, and mentorship

TEACHING CONTEXTS

Architecture + Design Teaching

Design studio, architectural drawing/visualization, creativity/design thinking, history/theory, building technology, environmental studies.

Computational + Digital Teaching

Introduction to Python programming, Unity, Unreal engine, VR, digital spatial prototyping.

Workshops + Mentorship

Unity-based spatial prototyping workshops, academic writing sessions, IAAC MaCAD jury, junior architect mentorship.

STUDENT FEEDBACK HIGHLIGHTS

Clarity + Explanation

Students noted that I explained concepts from different perspectives and clarified material that was difficult or rushed in lecture.

Responsiveness

Students highlighted availability, quick email responses, and support with assignments and exercises.

Prepared Tutorials

Students noted organized lessons, examples, and useful tutorial preparation.

Feedback + Improvement

Earlier feedback helped me improve pacing, assignment clarity, and support materials such as tutorial slides.

REPRESENTATIVE STUDENT COMMENTS

“Provided useful insight on assignments and exercises... helpful to break down difficult work into much easier to understand material.”

“She was always available for asking questions.”

“Helped clarify concepts that were brushed over in class during tutorials.”



ARCHITECTURAL DRAWING AND MODELING



HISTORY AND THEORY OF ARCHITECTURE

PART 3: SELECTED DESIGN AND PRACTICE PORTFOLIO

Selected architectural work connecting narrative, adaptive reuse, spatial experience, computation, and user-centered design.

This section presents selected design and practice work that supports my academic identity as an architect, researcher, and educator. The projects are included not as a separate professional portfolio, but as evidence of my long-standing interest in how design organizes experience, movement, social use, memory, adaptation, and spatial meaning.



ADAPTIVE REUSE USING USER NARRATIVES



EXPERIENTIAL PAVILION



PARAMETRIC INTERIORS



DESIGN USING SWARM BEHAVIOR



COMIC DESIGN



ADAPTIVE MUSEUM STRUCTURE

Selected design work showing interests in spatial narrative, adaptive reuse, social interiors, computation, and experiential design.

Spatial Narratives

Projects that use architecture to structure memory, sequence, identity, and experience..

Adaptive + Social Interiors

Design work focused on reuse, occupation, interaction, and changing spatial needs.

Computational + Experiential Design

Projects using digital tools, visualization, or parametric thinking to test spatial possibilities.

My design work demonstrates how architectural form can support narrative, adaptation, social use, and human experience, connecting my practice background to my current research and teaching agenda.

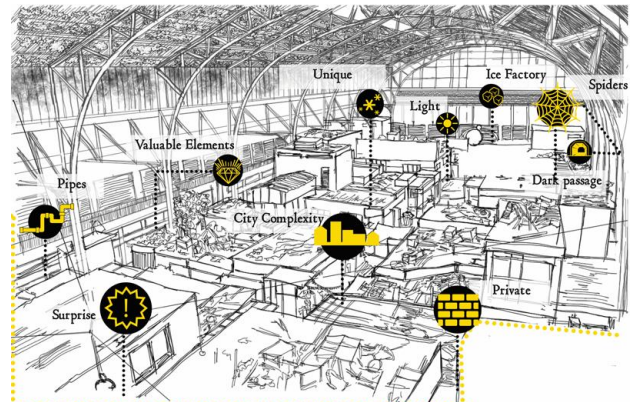
Graduation Project: Adaptive Reuse, Narratives, and Social Nodes

Translating user stories and market memories into adaptive reuse, public space, and interior experience.

This adaptive reuse project began with interviews and user stories about an old hall market in Downtown Cairo. The stories were mapped as narrative nodes and translated into spatial features, gathering points, circulation moments, and interior interventions. The project connects memory, public life, social use, and reuse as design drivers.



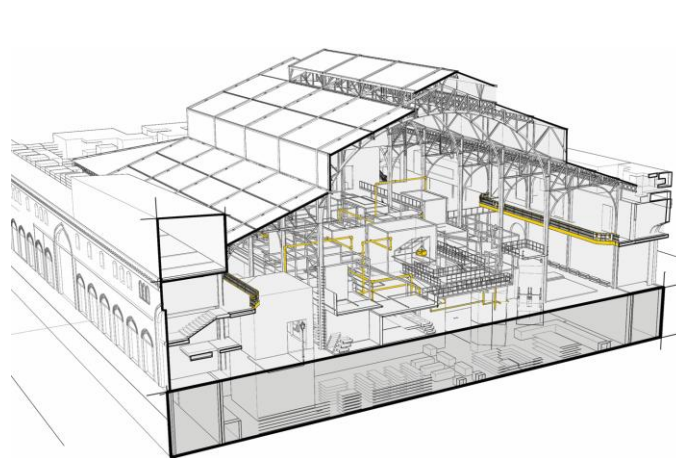
EXTERIOR DESIGN



NARRATIVE AND STORIES MAPPING



INTERIOR DESIGN



PERSPECTIVE SECTION

This project shows an early design interest in translating lived experience and social narratives into spatial organization, which later developed into my research on participation and inclusive spatial behavior.

Selected Design Projects: Parametric and Experiential Design

Computational form exploration, interior atmosphere, and spatial experience.

This page presents selected design studies exploring parametric form, adaptive reuse, interior atmosphere, and experiential spatial design. These projects demonstrate my design foundation in computational thinking, architectural representation, spatial narrative, and user-centered environments, which later informed my research on inclusive spatial behavior and digital design evaluation.



EXPERIENTIAL PAVILION INTERIOR



PARAMETRIC INTERIORS



ADAPTIVE MUSEUM STRUCTURE



DESIGN USING SWARM BEHAVIOR

What This Shows

Architectural representation, computational form exploration, and interior spatial thinking.

Design Relevance

The work connects form, atmosphere, materiality, movement, and user experience.

Link to Research

These design experiments formed an early foundation for my later work on spatial experience, participation, simulation, and evidence-based evaluation. Their contextual and social studies show my long-standing interest in research-informed design.

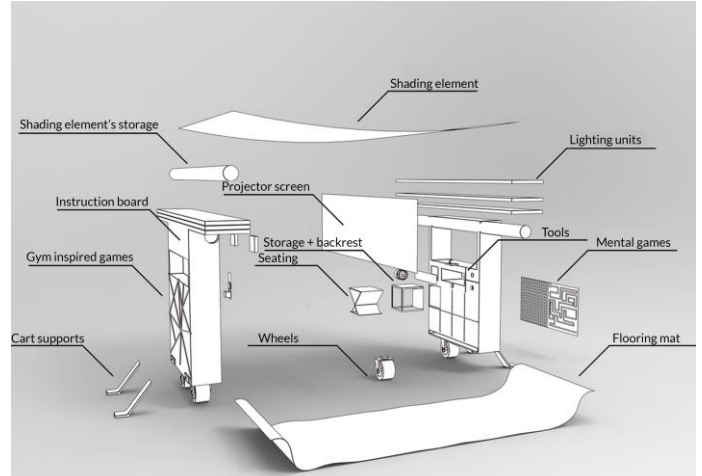
Selected Design Projects: Community-Based Design

Award-winning portable design system for play, craft learning, and courtyard-based community activity.

This award-winning project responded to interviews with children in underserved residential communities who described a lack of safe spaces for play and a desire to learn crafts and creative skills. In response, the team designed a portable cart system that could move between building courtyards and temporarily transform underused outdoor areas into places for play, learning, gathering, and making. The design was developed directly from children's requests, turning community input into a flexible spatial system.



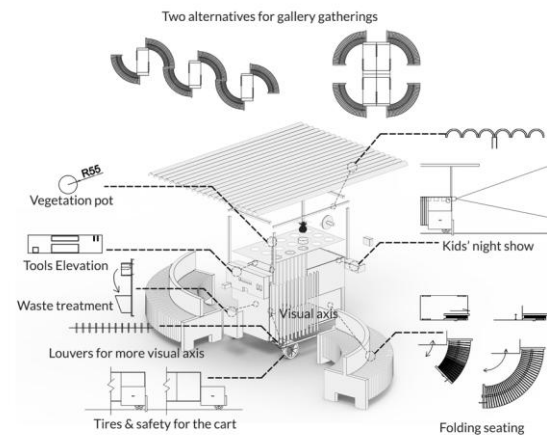
MOBILE LEARNING + PLAY CART - VARIATION #1



CART COMPONENTS AND LEARNING TOOLS – VARIATION #1



MOBILE LEARNING + PLAY CART - VARIATION #2



CART COMPONENTS AND LEARNING TOOLS – VARIATION #2

Awards:

2nd Place — Urban Innovations Phase II, National Competition, Egypt

Sponsored by the American University in Cairo, Cairo University, and the Embassy of the Netherlands.

3rd Place — Urban Innovations Phase I, National Competition, Egypt

Sponsored by the American University in Cairo, Cairo University, and the Embassy of the Netherlands.

Selected Design Projects: Housing Design and Visualization

Public and private housing projects across design development, rendering, and spatial communication.

Through professional practice, I contributed to the design development and visualization of public and private housing projects. My work included architectural rendering, spatial atmosphere, façade studies, courtyard and landscape views, and visual communication for residential proposals. These projects demonstrate my ability to translate design concepts into clear visual narratives across different housing scales.



PUBLIC HOUSING | COURTYARD AND URBAN SETTING



PRIVATE HOUSING | EXTERIOR PROPOSAL #1



PUBLIC HOUSING | SHARED COURTYARD VIEW



PRIVATE HOUSING | EXTERIOR PROPOSAL #2

Role

Design development, rendering, visualization, façade studies, and spatial communication.

Project Types

Public housing, private villas, residential courtyards, exterior scenes, and landscape views.

This professional work complements my research and teaching by showing my ability to connect architectural design, representation, housing environments, and everyday spatial experience.

YOMNA EL-GHAZOULY

Inclusive Spatial Behavior | Design Evaluation | Architecture + Participation

Thank you for reviewing my academic portfolio.

My work connects architectural design, human spatial experience, participation, and evidence-based design evaluation.

Contact and Profiles

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