

YOMNA EL-GHAZOULY

PhD Candidate, Computational Media Design, University of Calgary

Spatial Design and Human-Environment Researcher

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ACADEMIC PROFILE

My research develops participatory methods and digital design tools that translate lived spatial experience and observable behavior into evidence for inclusive design. Focusing on vulnerable and underrepresented populations, especially older adults, I examine how people negotiate comfort, access, belonging, and social participation in public and semi-public interiors. My work connects human-environment research and embodied inquiry with digital human modelling, behavioral simulation, and Unity-based pre-occupancy evaluation. This research also informs my teaching in architectural design, visualization, inclusive design, and computational approaches to understanding how diverse people experience and use space.

Core expertise: Inclusive design; Aging and the built environment; Environmental gerontology; Human-environment interaction; Participatory and embodied methods; Behavioral observation; Digital human simulation; VR/Unity-based design tools; Pre-occupancy evaluation.

EDUCATION

PhD Candidate, Computational Media Design

2023–present

University of Calgary, Canada

Research focus: Developing an end-to-end framework for inclusive pre-occupancy design evaluation by creating participatory methods to elicit older adults' lived spatial experiences and behaviors, translating these findings into computational decision logic and digital human profiles, and implementing a Unity-based tool that enables designers to evaluate public and semi-public interiors and generate evidence-based reports and design recommendations.

Supervisory committee: Pil Hansen, Frank Maurer, Jayna Holroyd-Leduc, and Hui Cai

MSc, Architectural Engineering and Environmental Design

2017–2021

Arab Academy for Science, Technology, and Maritime Transport, Egypt

Thesis: Using digital human models to evaluate ergonomic comfort and spatial performance in interior environments, supporting user-informed design decisions.

BSc, Architectural Engineering

2011–2016

Ain Shams University, Egypt

Graduation project: Adaptive reuse of three historical hall-markets using users' narratives and experience, complemented by an urban remodeling proposal to enhance spatial connectivity and integration across the surrounding urban fabric.

PUBLICATIONS AND CONFERENCES

Peer-Reviewed Journal Articles

El-Ghazouly, Y., Lee, H., Barnstaple, R., Kenny, S., and Hansen, P. 2026. "Mature Artistry and Adaptive Practices: Reframing Aging through Participatory and Transdisciplinary Inquiry." CENA Journal 44(2).

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

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>

Manuscripts Under Review

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*.

El-Ghazouly, Y., and Mastour, M. **2026**. "Negotiating Privacy and Social Image: Socio-Spatial Dualities in the Contemporary Household in Cairo." *Journal of Housing and the Built Environment*.

Peer-Reviewed Conference Papers

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.

Conference Papers 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.

El-Ghazouly, Y., **2026**. Spatial decision-making in later life: a participatory study of social and spatial interactions. *Canadian Association on Gerontology Conference*.

El-Ghazouly, Y., Lee, H., Barnstaple, R., Kenny, S., & Hansen, P., **2026**. Toward a transdisciplinary understanding of mature dancers' artistry and adaptive practices in Canada. *Canadian Association on Gerontology Conference*.

Conference Presentations

El-Ghazouly, Y., Lee, H., Barnstaple, R., Kenny, S., and Hansen, P. **2025**. "Mature Artistry and Adaptive Practices: Reframing Aging through Participatory and Transdisciplinary Inquiry." *Dance Research Conference, Movement Research Festival*, Calgary, November 24–28.

El-Ghazouly, Y. **2020**. "Architecture as a Symbol and Objectivation of Human Rage." *Time, Space and Culture International Conference*, Oxford, February 15–16.

PROJECT FUNDING

Graduate Student Association, Quality Money-Project lead, Idea Lab Transdisciplinary Retreat

Jun 2026

University of Calgary, Canada

Competitive project funding: 16,464 CAD

AWARDS AND SCHOLARSHIPS

Graduate College Graduate Award, University of Calgary | 2,500 CAD

Mar 2026

Arlene Strom and Colin Jackson College Scholarship for Innovation in Building Strong Community, University of Calgary | 1,000 CAD

Mar 2025

Graduate College Graduate Award, University of Calgary | 2,000 CAD

Mar 2025

President's Doctoral Recruitment Scholarship in Transdisciplinary Research, University of Calgary | 12,000 CAD/year

2023–2027

Top-Tier Journal Article Publication Award, Arab Academy for Science, Technology, and Maritime Transport | 1,000 CAD

Dec 2021

SELECTED RESEARCH AND DIGITAL EVALUATION PROJECTS

Inclusive Spatial Experience and Digital Design Evaluation — *Doctoral Researcher and Project Lead*

2023–present

PhD Research Project, University of Calgary, Canada

- Developed participatory methods to document how older adults experience and negotiate comfort, access, belonging, and social participation in public and semi-public interiors.
- Translated qualitative and behavioral findings into design criteria, digital human profiles, and computational spatial decision logic.
- Developed a Unity-based pre-occupancy evaluation tool that simulates social, physical, sensory, and behavioral experiences and generates design reports and recommendations.

VR Campus Navigation and Spatial Behavior Simulation — *Architectural Modeling Lead*

2022–2023

EVE Virtual Reality Lab, The American University in Cairo, Egypt

- Led the architectural modelling and spatial development of an immersive virtual university campus for wayfinding and user-experience research.
- Implemented the environment in Unity for testing through HTC Vive and CAVE-based immersive systems.
- Used eye-tracking and motion-tracking data to analyze gaze, movement paths, signage interpretation, and navigational decision-making.

Digital Human Models for Ergonomic Interior Evaluation — *Lead Researcher*

2017–2021

Master's Research Project, Arab Academy for Science, Technology, and Maritime Transport, Egypt

- Developed a digital evaluation framework integrating human models, anthropometric data, posture libraries, furniture parameters, and interior-layout variables.
- Applied the framework to assess and redesign a nursing-home bedroom using anthropometric data for older adults.
- Produced visual ergonomic-comfort scores and design recommendations to support user-informed interior and furniture decisions.

TRANSDISCIPLINARY RESEARCH COLLABORATIONS

Community-Based Program Evaluation with the Calgary Chinese Elderly Citizens' Association — *Graduate Research Assistant; CIHR Proposal Development*

2026–present

University of Calgary and community partners

- Contribute to community-partner engagement, evaluation planning, literature review, research design, data collection and analysis, and knowledge mobilization.
- Support culturally responsive evaluation of community programs serving older adults through collaboration across anthropology, community health sciences, rehabilitation medicine, occupational therapy, immigrant health equity, and palliative care.

Health at Home / Aging in Place Living Lab — *Champion Team Member*

2026–present

Health Everywhere Hub; Government of Alberta-funded initiative

- Bring architecture, human-environment research, and participatory design perspectives to an interdisciplinary initiative focused on aging in place and health-at-home innovation.
- Support collaboration among researchers, technology innovators, and community organizations developing living-lab-based health solutions.
- Organize events that bring together innovators in aging in place and community initiatives serving older adults to exchange knowledge, build partnerships, and identify opportunities for collaboration.

Aging in Dance — *Graduate research assistant*

2024–2026

Interdisciplinary Research Project, University of Calgary

- Contributed to literature review, participatory research design and facilitation, interdisciplinary analysis, and publication development across dance research, gerontology, sport science, dramaturgy, and critical studies.
- Co-authored the resulting peer-reviewed article on mature dancers' artistry and adaptive practices.

TEACHING EXPERIENCE

Teaching-assistant experience **across ten named courses at four universities**, spanning architectural design studio, drawing and visualization, history and theory, building technology, environmental studies, and introductory programming.

Teaching Assistant

2023–present

University of Calgary, Canada

CPSC217: Introduction to Computer Science for Multidisciplinary Studies I

- Guide students from design, science, and business backgrounds through programming fundamentals and computational problem solving using accessible, incremental explanations.

Teaching Assistant

2020–2023

The American University in Cairo, Egypt

ARCH2211: History and Philosophy of Modern and Contemporary Architecture

- Facilitated discussion and helped students connect architectural theory to spatial, cultural, and design contexts.

Teaching Assistant

2016–2023

Arab Academy for Science, Technology, and Maritime Transport, Egypt

AR210: Architectural Drawing; AR251: Building Technology 1;

AR233 & AR235: History & Theory of Architecture 3 and 5; AR362: Environmental Studies 1; AR415: Architectural Design 5

- Supported studio critique, drawing and representation, technical development, and iterative design exploration, including the use of digital tools.

Teaching Assistant

2018–2019

Ain Shams University, Egypt

ARC112: Creativity and Design Studio; ARC151: Building (1): Conventional Construction Systems

- Supported concept development, design critique, and the integration of technical construction knowledge into studio work.

INVITED TEACHING AND TALKS

- Research with/for Older Adults, Talks, Insights & Practice**—*Invited speaker* Apr 2026
University of Calgary, Canada
- Delivered a session on ethical and methodological approaches to participatory research with older adults, addressing challenges for meaningful engagement.
- Immersive Design and Unity-Based Spatial Prototyping Workshops**—*Invited instructor* Jul–Sep 2023
Information Technology Institute (ITI), Egypt
- Designed and delivered an intensive course for architecture, interior design, and furniture design professionals; produced recorded instructional resources for continued use.
 - Introduced participants to Unity-based workflows for developing navigable design environments and discipline-specific interactive projects.
- Research and Academic Writing**—*Invited instructor* May–Jun 2022
Online Academic Skills Workshop
- Delivered an introductory workshop on argument development, paper structure, source identification, and referencing.

PEDAGOGICAL TRAINING AND COURSE DEVELOPMENT

- Course Design Program** Nov 2025
University of Calgary, Canada
- Completed training in course design, learning outcomes, assessment alignment, and student-centered teaching.
 - Developed a proposed course, *Applied Accessibility in Architecture*, focused on accessibility audits, inclusive design, stakeholder role-play, and collaborative design sprint methods.
- Teaching and Learning Professional Development Series** 2020–2023
The American University in Cairo
- Completed training in backward design, active learning, assessment and rubrics, feedback, visual thinking, academic integrity, disability accommodation and etiquette, student wellbeing, and class dynamics.

ACADEMIC SERVICE, LEADERSHIP, AND REVIEWING

- Academic Reviewer** 2026–present
International Journal of Qualitative Methods
- Jury Member** 2024–present
Institute for Advanced Architecture of Catalonia (IAAC), Spain
- Evaluate final projects for the Complex Forming Seminar in the Master in Advanced Computation for Architecture and Design (MACAD).
- Executive Member, Graduate College** 2024–2026
University of Calgary, Canada
- Served as an Executive Committee Member and Head of the Communications Committee, contributing to interdisciplinary programming and outreach.
- President’s Doctoral Scholar** 2023–present
University of Calgary, Canada
- Represent transdisciplinary doctoral research in presentations to university leadership and institutional initiatives.

ARCHITECTURAL PRACTICE

Architect

Jul 2017–Sep 2018

UDAAR Engineering Consultancy, Egypt

- Led conceptual and parametric design development, conducted architectural research supporting site-responsive design decisions, and mentored junior architects through project development and design review.

Junior Architect

Jun 2016–Jun 2017

Integrated Development Group (IDG), Egypt

- Contributed to residential and public-housing projects through design development, execution drawings, visualization, client meetings, and interdisciplinary coordination.

Research Intern

Aug–Sep 2015

Megawra Built Environment Collective, Egypt

- Supported urban surveys and stakeholder-informed regeneration proposals for public and semi-public spaces in historic Cairo.

Design Intern

Jul–Aug 2015

Maqam Designs, Egypt

- Supported interior design development through mood boards, spatial layouts, and working drawings.

METHODS AND TECHNICAL EXPERTISE

Research Methods: Participatory research; qualitative research design; focus groups; interviews; behavioral observation; embodied and performative methods; community-engaged research; spatial experience analysis; research with older adults.

Design Evaluation: Inclusive design evaluation; accessibility and spatial comfort assessment; ergonomic evaluation; digital human modeling; wayfinding and spatial behavior analysis; pre-occupancy evaluation; user experience evaluation in built and virtual environments.

Digital and Design Tools: Unity; Unreal Engine; VR/immersive environments; Rhino 3D; Grasshopper; Revit; AutoCAD; 3D modeling; parametric design; architectural visualization; digital human and avatar-based simulation; agent-based modeling and simulation.

SELECTED DESIGN COMPETITIONS

Selected Exhibitors, IEEE Egyptian Engineering Day (EED) (National, Egypt)

2015

2nd Place, Urban Innovations Phase II (National, Egypt)

2015

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

1st Place, Jotun Mentorship Competition (National, Egypt)

2015

3rd Place, Urban Innovations Phase I (National, Egypt)

2015

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

Shortlisted, Nasser Bin Hamad Housing Competition (International)

2014

1st Place, Un-Design Product Design Award (International)

2014

RESEARCH ETHICS AND COMMUNITY ENGAGEMENT

Research Ethics based on the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2: CORE 2022), University of Calgary, Canada	Nov 2023
CITI Social and Behavioral Research - Human subjects protection and ethics, The American University in Cairo, Egypt	Mar 2023
Volunteer, Calgary Seniors' Resource Society, Canada Engage older adults through social calls and support activities addressing isolation and community connection, informing sensitivity to age-inclusive participatory research.	Sep 2025-present
Volunteer, Megawra Built Environment Collective, Egypt Engaged children in learning about historic neighborhoods and architectural heritage through interactive activities.	Jul-Aug 2015