

SINA RAZZAGHI ASL

Assistant Professor of Hazards and Environmental Geography

Department of Political Science and Geography

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Education

2023 **Ph.D., Geography & Urban Studies**

Temple University, Philadelphia, Advisor: Dr. Hamil Pearsall

Dissertation: *Examining the Impact of Nature-based Solutions on Flood Vulnerability and Loss in Urbanizing Regions: The Case Study of Philadelphia Metro Region*

2011 **Ph.D., Architecture – Landscape**

Iran University of Science & Technology, Tehran, Advisor: Dr. Mohsen Faizi

Dissertation: *Landscape Architects & Urban Designers' Approaches to the Common Boundary Themes in Place-Making*

2007 **M.A., Urban Planning & Design**

Iran University of Science & Technology, Tehran, Advisor: Dr. Mostafa Behzadfar

Thesis: *Revisiting the Public Spaces in Hashtgerd New Town Based on Enhancing Environmental Quality*

2004 **B.S., Architectural Engineering**

Iran University of Science & Technology, Tehran

Experience

2025- **Faculty Affiliates**, Institute for Coastal Adaptation and Resilience (ICAR), Old Dominion University, Norfolk, Virginia

2025- **Assistant Professor**, Department of Political Science and Geography, Old Dominion University, Norfolk, Virginia

2025- **Research Collaborator**, Princeton Precision Health, Princeton University

2024 - 2025 **Postdoctoral Research Associate**, Center for Policy Research on Energy and the Environment (C-PREE), Princeton University, NJ

2025 - 2026 **Visiting Professor**, Faculty of Architecture, GdanskTech Rector's Grant, Gdansk University of Technology, Poland

2022-2023 **Instructor**, Department of Geography, Environment and Urban Studies, Temple University, Philadelphia

- 2022-2023 **Graduate Fellow**, Public Policy Lab, College of Liberal Arts (CLA), Temple University, Philadelphia
- 2013-2018 **Assistant Professor**, Department of Urban Design, Shahid Rajaei Teacher Training University, Tehran, Iran

Teaching

- Spring 2026 **Old Dominion University, USA**
GEOG 101S: Environmental Geography
GEOG 306T: Hazards: Natural and Technological
- Fall 2025 **Old Dominion University, USA**
GEOG 101S: Environmental Geography
GEOG 401: Global Environmental Policy
- Spring 2025 **Gdansk University of Technology, Poland**
Natural Hazards and Disasters
- 2021-2023 **Temple University, USA**
ENST 0842: Sustainable Environments
GUS 0821: Digital Mapping: From Mercator to Mashups
GUS0831: Global Cities
- 2013-2018 **Shahid Rajaei Teacher Training University, Iran**
SRUD 151: Sustainable Cities
SRUD 112: Environmental Hazards and Disasters
SRUD 242: GIS
SRUD 212: Environmental Impact Assessment
SRUD 212: Urban Planning Theories

Publications

Peer-Reviewed Journal Articles

- Razzaghi Asl, S.**, Azadgar, A., Nyka, L. (Accepted). Green Privilege? Exploring Spatial Relations between Nature-based Solutions and Social Vulnerability in Three European Cities. *Local Environment*
- Razzaghi Asl, S.**, Tate, E., Emrich, C., Rahman, A., Royster, K. (2026). Beyond Discrete Indicators: Modeling Intersectional Flood Vulnerability. *Applied Geography* 187, 103894
- Razzaghi Asl, S.**, Drakes, O., Tate, E., Brody, S., Highfield, W. & Atoba, K. (2026). The Influence of Scale in Modeling Social Vulnerability and Disaster Assistance. *Annals of the American Association of Geographers* 116:1, 198-218.
- Razzaghi Asl, S.**, Rahman, A., Tate, E., Lehman, W., Wing, O. (2025). Social Vulnerability Correlates of Flood Risk to Crops and Buildings. *Natural Hazards* 121: 8137–8158

- Azadgar, A., Gancza, **Razzaghi Asl, S.**, Salata, S. A., Nyka, L. (2025). Optimizing Nature-based Solutions for Urban Flood Risk Mitigation: A Multi-Objective Genetic Algorithm Approach in Gdańsk, Poland. *Science of the Total Environment* 963, 178303
- Razzaghi Asl, S.** (2024). Green Spaces and Flood Vulnerability in Small Urbanizing Regions: A Case Study in the Philadelphia Metropolitan Area. *Environmental Hazards* 24(5), 483–505.
- Razzaghi Asl, S.** & Pearsall, H. (2023). How Do Spatial Factors of Green Spaces Contribute to Flood Regulation in Urban Areas? A Systematic Mapping Approach. *Progress in Physical Geography: Earth and Environment* 47(5), 702-720
- Razzaghi Asl, S.** (2023). To What Extent Have Nature-based Solutions Mitigated Flood Loss at a Regional Scale in the Philadelphia Metropolitan Area? *Urban Science* 7(4), 122
- Razzaghi Asl, S.** & Pearsall, H. (2022). How Do Different Governance Modes Support Ecosystem Services/Disservices in Small-Scale Urban Green Infrastructure? A Systematic Review. *Land* 11(8)
- Razzaghi Asl, S.** (2022). Re-powering the Nature-intensive Systems: Insights from Linking Nature-based Solutions and Energy Transition. *Frontiers in Sustainable Cities* 91
- Razzaghi Asl, S.** & Azadgar, A. (2022). The Spatial Distribution of Urban Community Gardens and Its Associated Socio-economic Status in Tehran, Iran. *Frontiers in Sustainable Food Systems* doi: 10.3389/fsufs.2022.949075
- Razzaghi Asl, S.** (2023). Rooftops for Whom? Some Environmental Justice Issues in Urban Green Roof Policies of Three North American Cities. *Environmental Policy and Law* 53,49-60
- Razzaghi Asl, S.** (2022). Green-oriented Planning for Shrinking Cities Through an Integrated Ecosystem Services/disservices Analysis: A Case of Minoo Island, Iran. *International Review for Spatial Planning and Sustainable Development* 10(1)
- Razzaghi Asl, S.** (2022). Linking Urban Marginality and Socio-ecological Systems to Highlight Research Areas in Informal Settlements Upgrading: A Literature Review and Future Directions. *Space Ontology International Journal*, 11(1), 1-14.
- Razzaghi Asl, S.**, & Khoshghadam, F. (2018). Application of Smart Growth in Designing Urban Deteriorated Areas from the Perspective of Experts and People, Case Study: Farahzad Community. *Armanshahr Architecture & Urban Development* 10(21), 149-159.
- Khoshghadam & **Razzaghi Asl, S.** (2017). Strategies to Improve Environmental Quality in the Renovation of Farahzad Deteriorated Area by Strategic –Hierarchical Analysis (SWOT-GIS), *Research and Urban Planning* 7(27), 37-58
- Razzaghi Asl, S.**, Ariaei, A. R., & Ghahfarokhici, S. B. (2017). An investigation of the Comparative Impact Assessment of Urban Facades on Psychological Attributes of Residents in New and Old Housing Areas; the Case of Jolfa Street in Isfahan. *Architecture, Civil Engineering, Environment* 10(3), 57-70

Razzaghi Asl, S., & Khoshghadam, F. (2017). Evaluation of the Factors Affecting Social Sustainability Improvements and Their Impact on the Renovation of Deteriorated Areas from Resident’s Viewpoint (Case Study: Shiva Neighborhood in Tehran). *Motaleate Shahri* 6(22), 59-74

Khoshghadam, F. & **Razzaghi Asl, S.** (2017). Strategies to Improve Environmental Quality in the Renovation of Farahzad Deteriorated Area by Strategic-Hierarchical Analysis (SWOT-AHP). *Research and Urban Planning* 7 (27), 37-58

Hakimizad, S., **Razzaghi Asl, S.** & Ghiaee, M. (2015). A Review of the Design Approaches Using Renewable Energies in Urban Parks. *International Journal of Renewable Energy Research* 5(3), 686-693

Razzaghi Asl, S. & Zarei, N. (2014). Urban Design, Medicine and the Need for Systematic and Evidence-based Procedures for Urban Designers. *Urban Design International* 19(2), 105-112

Razzaghi Asl, S. (2015). Boundary Concepts in Trans-disciplinary Approach to Environmental Design in Iran, from the Viewpoints of Professors. *Armanshahr Architecture & Urban Development* 7(13), 211-219

Manuscripts Under Review

Razzaghi Asl, S., Tate, E. & Pearsall, H. SECURE-NBS: A conceptual framework for integrated nature-based flood risk reduction. *Landscape and Urban Planning*

Rahman, A., Tate, E., **Razzaghi Asl, S.,** Arenas, A., & Diaz Garcia, M. Crop Flood Loss in the U.S. *Risk Analysis*

Razzaghi Asl, S. Green protection paradox for nature-based solutions (GPP–NBS): A conceptual framework for maladaptive flood risk reduction. *Ambio*

Manuscripts in Progress

Grants Awarded

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| 2025-2026 | The Summer 2026 QEP: <i>PURSUE TRUTH</i> faculty workshops. Old Dominion University. \$ 2,100 |
| 2026 | “Quantitative Assessment of Hybrid Infrastructure for AI-Enabled, Multi-Disciplinary Coastal Resilience under Recurrent Tidal Flooding.” ICAR CARMA Seed Grant. Old Dominion University. (PI: Lisa Wang, Co-PI: Sina Razzaghi Asl , Co-PI: Lusi Li). \$31,000 |
| 2026 | “AI-Driven Spatial Targeting of NbS: A Prescriptive Framework for Compound Flood-Heat Resilience in Coastal Virginia.” ICAR CARMA Seed Grant. Old Dominion University. (PI: Sina Razzaghi Asl , Co-PI: Maryam Golbazi). \$31,000 |
| 2023 | The 2022 College of Liberal Arts Research Award for Advanced Doctoral Students. Temple University. \$ 5,000 |

2021-2023 5-year Graduate Assistantship Fellowship, Department of Geography, Environment and Urban Studies, Temple University, Philadelphia, PA.

Grants Applied For

- 2026 “Co-Developing a Participatory, Policy-Oriented Framework to Assess Hybrid Infrastructure for Coastal and Urban Resilience under Compound Flooding.” ICAR Resilient and Adaptable Communities Partnership Program. Old Dominion University. (PI: Lisa Wang, co-PI: Sina Razzaghi Asl, co-PI: Trang Le, co-PI: George M. Mcleod). \$100,000
- 2026 “Quantifying Building-Level Flood Recovery Benefits of Nature-Based Solutions: A GeoAI Scenario Analysis for Virginia Beach.” Old Dominion University. (PI: Sina Razzaghi Asl, co-PI: Lisa Wang, Co-PI: Marina Saitgalina). \$100,000
- 2025 “Urban Climate Intelligence Hub: Integrating NASA’s Prithvi-WxC Model with Local Land-Use Data for Resilient Urban Planning.” NASA ROSES A.9. (PI: Maryam Golbazi, Co-PI: Sina Razzaghi Asl, co-PI: Frank Liu). \$500,000
- 2025 “An Integrative AI Framework to Predict the Effects of Genomic Variants in Their Larger Societal and Environmental Context.” National Institutes of Health (NIH). Princeton Precision Health (PPH). (PI: Olga Troyanskaya, co-PI: Eric Tate, Collaborator: Sina Razzaghi Asl), (*Not funded*). \$ 8,000,000.00

Technical Reports

- 2024-2025 “The Global Roadmap for Urban Nature-based Solutions: Middle East and North Africa Roadmap”. Contributing Author, NATURA Group, USA. <https://www.nbsroadmap.org/>

Research Papers Presented at Professional Meetings

“A conceptual framework for integrated nature-based flood risk reduction.” Annual Meeting of the Association of American Geographers (AAG) in San Francisco, California, Oral presentation. March 17, 2026.

“Intersectional Social Vulnerability and Flood Exposure Using Geographical Random Forest.” Annual Meeting of the Association of American Geographers (AAG) in Detroit, Michigan, Oral presentation. March 18, 2025.

“Assessing Flood Recovery Assistance and Social Vulnerability: A Multi-Scale Analysis in Post-Hurricane Harvey.” NH32A-07: Fall meeting of the American Geophysical Union. Oral presentation session: Elevating Equity: Shifting Climate and Disaster Risk Assessment for a Just Future III. AGU. Washington D.C. December 2024.

Social Vulnerability Determinants of Flood Loss in Small Urbanizing Regions. 49th Annual Natural Hazards Research and Applications Workshop. Colorado, Oral presentation in the Researchers Meeting. July 15, 2024.

“Examining Early Plant Community Response to a Novel Tornado Disturbance.” Mid-Atlantic ESA Conference 2024. Poster Presentation.

“Nature-based Solutions for Flood Hazard Mitigation: A New Analytical Framework.” Annual Meeting of the Association of American Geographers (AAG) in Denver, Colorado, Oral presentation. March 15, 2023.

How Do Spatial Factors of Green Spaces Contribute to Flood Regulation in Urban Areas? Middle States Division AAG Conference 2022, Bloomsburg University of Pennsylvania. Oral presentation. October 28-29, 2022.

“Photosynthetic Response of Vegetation After Tornado Damage Ida at the Ambler Field Station.” The Temple Ambler Field Station Research Symposium. Philadelphia. Poster Presentation. July 28th, 2022.

“Mapping Tornado Ida Damage: A Multispectral Remote Sensing Analysis in Montgomery County, Philadelphia Region.” Annual Meeting of the Association of American Geographers (AAG) in Seattle, Washington, Oral presentation. March 19, 2022.

“Linking Urban Marginality and Socio-Ecological Systems: Insights from a Narrative Literature Review.” Annual Meeting of the Association of American Geographers (AAG) in New York, Oral presentation. March 17, 2021.

Invited Talks

- 2026 *“The Influence of Scale in Modeling Social Vulnerability and Disaster Assistance”*. College of Arts and Letters and the Institute for the Humanities, Annual Junior Faculty Forum. 3 March 2026. Old Dominion University
- 2026 *“Modeling Social Vulnerability & Nature-Based Flood Risk Reduction: Equity, Scale, and Socio-Ecological Perspectives”*. 2 February 2026, the Center for Coastal Physical Oceanography and the Institute for Coastal Adaptation and Resilience (ICAR) at Old Dominion University
- 2025 *“Geospatial Modeling of Vulnerability and Adaptation to Natural Hazards”*, Old Dominion University, Department of Political Science and Geography, Norfolk, VA
- 2025 *“Flood Resilience”*, Virginia Community Rating System Workgroup, Wetland Watch, Norfolk, VA
- 2024 *“Interdisciplinary Insights on Resilience and Equity in the Face of Environmental Challenges”*, Ursinus College, Department of Environment and Sustainability
- 2024 *“GIS-driven Insights for Planning Flood Responsive Nature-based Solutions in Urbanizing Regions”*, Indiana University, Bloomington, IN
- 2024 *“GIS-driven Insights for Assessing Nature-based Solutions for Flood Risk Reduction”*, East Carolina University, Greenville, NC
- 2022 *“Just Green Infrastructure”*, Iranian Association of Green Space Engineering

2017 “Post-disaster Housing Planning”, Shahid Rajaei Teacher Training University

Sessions & Workshops Organized

- 2025 Teaching a Method Workshop “Exploratory Data Analysis in R” at the School of Public and International Affairs, Princeton University, January 2025.
- 2024 Chair of AAG Annual Meeting’s Session “Hazards, Risks, and Disasters Specialty Group (HRDSG) Flooding” in Honolulu, Hawaii, 16-20 April.
- 2023 Chair and Organizer of AAG Annual Meeting’s Session “Nature-based Solutions for Urban Flooding” in Denver, Colorado, 23-27 March.

Media Coverage

- 2025 Clase, C. [Princeton Study Reveals That Scale of Analysis Can Distort Understanding of Inequity in FEMA Aid Distribution](#). Center for Policy Research on Energy and the Environment, October 30
- 2024 Clase, C. [Case Study Reveals Connection between Flood Vulnerability and Green Spaces](#). Center for Policy Research on Energy and the Environment, December 2
- 2025 Razzaghi Asl, S. & Clase, C. [Researchers Identify Key Social Vulnerability Factors Relating Flood Risks to Buildings and Crops](#). Center for Policy Research on Energy and the Environment, May 19

Honors & Awards

- 2024 Gilbert F. White Award. Hazards, Risks, and Disasters Specialty Group, Association of American Geographers. Awarded for Best PhD Dissertation in the Field of Hazards Geography.
- 2024 Travel Award, Natural Hazards Center, University of Colorado Boulder.
- 2023 Olen Paul Matthews and Kathleen A. Dwyer Fund for Water Resources Award for Best Physical Geography Paper, “Examining the Effectiveness of Nature-Based Solutions for Flood Regulation in Urbanizing Regions: A Case Study of Philadelphia Metro Area”, AAG Water Resource Specialty Group.
- 2022-2023 Jeanne X. Kasperson Student Paper Competition winner. “Nature-based solutions for flood hazard mitigation: A new analytical framework”. Hazards, Risks, and Disasters Specialty Group, AAG 2023
- 2022 Travel Award, AAG, Landscape Specialty Group.
- 2007 Outstanding Master Thesis Award, Honorable Mention, Iran University of Science and Technology

2007 Distinguished Master Alumni Award, Dept. of Architecture and Environmental Design,
Iran University of Science and Technology

Certificates

- NSF Grants Conference and Workshops - Philadelphia, PA, June 3-5, 2024.
- Online Teaching Certificate, *Temple University's College of Liberal Arts, November 2022*
- Geospatial Data Science Graduate Certificate, *Temple University, December 2023*

Memberships in Professional Societies

2024- American Geophysical Union (AGU)

2020- American Association of Geographers (AAG)

2020- American Planning Association (APA)

Professional Service & Leadership

2026-2028 Co-authoring the Chapter 8: Mitigation Matters: Reducing the Impacts of Disasters in the Third Assessment of Natural Hazards in the United States, the Natural Hazards Center, University of Colorado, Boulder (Led by Dr. Lori Peek)

2026 Ad-Hoc Review Panel for the AAG Hazards, Risks, and Disasters (HRD) Gilbert White Thesis/Dissertation award 2026

2025-2026 ODU's Inaugural DivRED Early Career Faculty Research Proposal Development Academy Member

2025- Editorial Board Member, *Applied Spatial Analysis and Policy Journal* (Q2), Springer Nature

2025-2027 Hazards, Risks, and Disasters Specialty Group (HRDSG) Director- American Association of Geographers (AAG)

2024 AAG Hazards, Risks, and Disaster Specialty Group's awards committee member

2022- Remote Sensing and Sustainability Lab (rsensus), Temple University: Affiliate member (Led by Dr. Victor Hugo Gutierrez-Velez)

2022-2023 AAG Graduate Student Affinity Group (GSAG): Board Member, *reviewing submitted proposals for granting awards for six graduate-level students in Geography in the U.S. provided by AAG*

2021 The Philadelphia Health-First Green Infrastructure Collaborative, Greenprint Partners & Quantified Ventures: Contributing Author

- 2018 ICCEN Conference, Spain: Scientific Committee, *reviewing submitted abstracts and selecting the best ones for in-person and poster presentations*
- 2023 The Middle States Division of the American Association of Geographers Conference (October 27-28, 2023), Temple University: Executive Member
- 2020-2025 Ad-Hoc Peer Reviewer for Journals: *Applied Spatial Analysis and Policy; City and Environment Interactions; Communications Earth & Environment; Discover Sustainability; Discover Public Health; Discover Environment; Humanities and Social Sciences Communications; Journal of Environmental Management; Journal of Water Resources Planning and Management; Journal of Flood Risk Management; Landscape and Urban Planning, Nature-based Solutions; People and Nature; The Professional Geographer, Urban Water Journal, npj Urban Sustainability, GeoJournal, Progress in Disaster Science*