HESSAM DJAVAHERPOUR

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Research Positions

Dec. 2022 - Present	**Visiting Research Associate**, POTIOC Team at Inria Bordeaux, Bordeaux, France
Jan 2019 - Mar 2019	**Research Assistant**, Computer Science Graphics, Interaction, and Visualization (GIV) Lab, University of Calgary
May - August 2016-18	**Research Assistant**, CS GIV Lab, University of Calgary

Education

Jan. 2016 – Jul. 2021	**Ph.D. in Computer Science**, University of Calgary Concentration: **Computational Media Design (CMD)** Dissertation: "GEOPHYS: Design and Fabrication of Geospatial Physicalizations" GPA: 3.8
Feb. 2010 – Jun. 2012	**Master's Degree in Architecture and Design,** Iran University of Science and Technology (IUST) GPA: 4.0
Sep. 2005 – Feb. 2010	**Bachelor's Degree in Architectural Engineering,** Iran University of Science and Technology (IUST) GPA: 4.0

Research Interests

Mixed Reality and Immersive Technologies, Data Visualization, Tangible Interaction, Data Physicalization, Digital Fabrication and Rapid Prototyping, Data-Driven Design, Parametric Design and Modelling, Algorithmic Design Approaches.

Publications

Peer-reviewed Publications:

1) Hessam Djavaherpour, Faramarz Samavati, Ali Mahdavi-Amiri, Fatemeh Yazdanbakhsh, Samuel Huron, Richard Levy, Yvonne Jansen, and Lora Oehlberg (2021), "**Data to Physicalization: A Survey of the Physical Rendering Process**," Computer Graphics Forum Journal (Presented at EUROVIS 2021)

2) Lynn Moorman, Hessam Djavaherpour, Katayoon Etemad, and Faramarz Samavati (2020), "**Geospatial Physicalization in Geography Education**," Journal of Geography.

3) Seyed Vahab Hosseini, Hessam Djavaherpour, Joshua M. Taron, Usman R. Alim, and Faramarz Samavati (2019), "**Data-Spatialized Pavilion: Introducing a Data-driven Design Method based on Principles of Catoptric Anamorphosis**," HYPERSEEING: The Proceedings of the SMI 2019 Fabrication and Sculpting Event (FASE).

4) Kamyar Allahverdi, Hessam Djavaherpour, Ali Mahdavi-Amiri, and Faramarz Samavati (2018), "**Landscaper: A Modeling System for 3D Printing Scale Models of Landscapes**," Computer Graphics Forum Journal (Presented at EUROVIS 2018).

5) Hessam Djavaherpour, Ali Mahdavi-Amiri, and Faramarz Samavati (2017), "**Physical Visualization of Geospatial Datasets**," IEEE Computer Graphics and Applications (Selected for Presentation at IEEE Vis, Berlin, Germany, October 2018).

6) Hessam Djavaherpour, Seyed Bagher Hosseini, Saeed Norouzian Maleki (2013), "**Residents' Satisfaction from Neighborhood Open Spaces and Public Amenities in High-Density Residential Districts (Case Study: 8th District of Tehran)**," Armanshahr Architecture & Urban Development Journal.

In Progress:

1) **"Using Mixed Reality to Reduce the Psychological Effects of Climate Change,"** with Yvonne Jansen.

2) **"Narrative Visualization of Environmental Issues to Improve Awareness about Climate Change and Sustainability,"** with Yvonne Jansen.

3) "**INTUIT: An INteractive Tactile physicalization for User Interpretation of RADAR Technology to Help Inuit in Baffin Island**," with Lynn Moorman and Faramarz Samavati.

4) "**Using AR and Physical Visualizations to Improve Decision-making and Planning Processes in Urban and Remote Locations**," with Yvonne Jansen, Richard Levy, and Faramarz Samavati.

Teaching Experiences

CPSC 481 - **Human-Computer Interaction I**, Teaching Assistant, University of Calgary

- Fall 2020 (Online Synchronous):
    - Two Sections, Online Synchronous, 50 junior/senior students in each section, Total: 100.
    - Teaching Topics: UX and UI Design, User-centered Design, IDEO Cards, Task-centered Design, Ideation, Low-fidelity Prototyping with Balsamiq, Usability Testing.

EVDS 683 - **Advanced Special Topics in EVDS (3D Imaging)**, Guest Lecturer, University of Calgary

- Summer 2018 (In Person):
    - One Section, In Person, 20 grad students.
    - Lecture Topic: Introducing Physical Modelling Using Landscaper.

Garage 142 (The Maker Space for Computer Science - **Modelling and Fabrication**), Teaching Assistant, University of Calgary

- Winter 2017 (In Person)
    - Two Sections, In Person, up to 20 junior/senior students in each section, Total: 40.
    - Teaching Topics: Safety Training Sessions, Workshop on "Low-fidelity physical prototyping using scale-modelling techniques," Workshop on "Modelling using OpenSCAD."

Architectural **Design Studio**, Instructor, Azad University of Tafresh

- September 2012 - January 2015 (In Person)

Architectural **Design Studio**, Teaching Assistant, Iran University of Science and Technology (IUST)

- September 2009 – January 2014 (10 consecutive semesters)

Service

Ad-hoc Reviewer, CHI 2023 Conference

Ad-hoc Reviewer, EuroVis 2022 Annual Conference (Special Recognition for Outstanding Reviews)

Ad-hoc Reviewer, International Journal of Architectural Engineering and Planning

Adviser, Towards a Generative Design for Density and Daylighting Optimization, Master's Thesis in Architecture by Alaleh Mohseni, Iran University of Science and Technology, October 2020

Organizer and Presenter, Computer Science Open House Event, University of Calgary, October 2019

Awards and Honors

2022	Winner (1 of 40), MOPGA 2022 Visiting Fellowship Program for Young Researchers funded by the Ministry of Europe and Foreign Affairs of the Republic of France
2020	Winner, Alberta Graduate Excellence Award - Doctoral
2019	Winner, Alberta Graduate Excellence Award - Doctoral
2018	Paper selected as one of the six papers representing "Current Trends in Visualization," Computing Now and the IEEE Computer Society featured theme: *Physical Visualization of Geospatial Datasets*.
2016	Admission with Full Scholarship in the Computational Media Design (CMD) Program, Department of Computer Science, University of Calgary, PhD
2015	The 154 Residence (Mohammad Taraghijah and Hessam Djavaherpour) selected as top 5 residential projects of the year in Iran
2012	Achieved 1st place in the first national renewable energies competition (Zero Energy House Design for the Coastal Hot Climate of Iran), Iran University of Science and Technology (IUST), Appreciated by the research department of IUST
2010	Admission with Full Scholarship, Iran University of Science and Technology (IUST), Masters
2010	Achieved 4th position among 60 students at the school of architecture (Class of 2005), Awarded admission for master's degree in architecture without the Iranian Universities Entrance Competitive Examination, Iran University of Science and Technology (IUST)
2005	Admission with Full Scholarship, Iran University of Science and Technology (IUST), Bachelors
2005	Top 1 percentile among more than 350000 in Iranian Universities Entrance Exam (Mathematical Sciences)

Academic Conference Presentations

Hessam Djavaherpour (2021), "**Data to Physicalization: A Survey of the Physical Rendering Process**," Oral Presentation at EUROVIS 2021, Zurich, Switzerland (Virtual)

Hessam Djavaherpour (2018), "**GEOPHYS**," Oral Presentation at the 5th Digital Earth Workshop, Banff, Canada

Hessam Djavaherpour (2016), "**A Physical Representation of Digital Earth**," Oral Presentation at the 4th Digital Earth Workshop, Banff, Canada

Hessam Djavaherpour, Ali Javaherpour, Alireza Osanlou, Saman Zehtabzadeh, Alireza Sameti, and Mahsa Qadimzadeh Alamdari (2012), "**Zero Energy House Design for the Coastal Hot Climate of Iran and Solar Stirling Engine Design**," Poster Presentation at the 1st National Renewable Energies Competition, Iran University of Science and Technology

Professional and Academic Work Experience

2021 – Dec. 2022	**Computational Designer**, Kirkor Architects and Planners, Toronto, Ontario, Canada
2019 – 2021	**Computational Designer (Part-time)**, Kirkor Architects and Planners, Toronto, Ontario, Canada
2016 – 2021	**Ph.D. Student (Full Scholarship)**, University of Calgary, Calgary, Alberta, Canada
2013 – 2016	**Co-Founder Architect**, A3 Group Architecture and Design Studio, Tehran, Iran
2010 – 2015	**Architect**, Taraghijah Architects, Tehran, Iran
Summer 2010	**IAESTE** (International Association for the Exchange of Students for Technical Experiences) **Exchange Student**, Mamdouh Blaiech Architects, Tunis, Tunisia
2010 – 2012	**M. Arch. Student**, Iran University of Science and Technology (IUST), Tehran, Iran
2005 – 2010	**B. Arch. Student**, Iran University of Science and Technology (IUST), Tehran, Iran

Graduate Coursework

Courses taken/audited: Digital Fabrication, Creative Programming, Modelling for Computer Graphics, Real Estate Development and Finance, Responsive Architecture, Research Methods in Computer Science

Programming and Software Skills

Programming: C#, Python, Python for Grasshopper and Rhino, Processing,

Parametric Design, Modelling, and Rendering: Unity, MRTK, Rhinoceros, Grasshopper, Architectural Revit, ArchiCAD, AutoCAD, Lumion

Physical Computing: Arduino,

Graphical Design: Adobe CS (Photoshop, InDesign, Illustrator), Bluebeam