

# Alireza Karduni

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## Education

- 2017–2021 **Ph.D. in Computing and Information Systems.**  
University of North Carolina at Charlotte, Charlotte, USA  
Dissertation: Towards an Understanding of the Impact of Uncertainty and Emotional Content on Users' Decision-making About Misinformation  
Advisor: Wenwen Dou, Ph.D.  
*Successfully defended December 2020*
- 2015–2017 **M.Sc. in Information Technology.**  
University of North Carolina at Charlotte, Charlotte, USA  
Dual Degree Thesis: Anatomy of a Protest: Activism, Social Media, and Urban Space  
Advisor: Professor Eric Sauda
- 2015–2017 **Master of Architecture.**  
University of North Carolina at Charlotte, Charlotte, USA  
Dual Degree Thesis: Anatomy of a Protest: Activism, Social Media, and Urban Space  
Advisor: Professor Eric Sauda
- 2012–2014 **Master of Urban Planning and Policy.**  
University of Illinois at Chicago, Chicago, IL  
Masters Project: Walk With Chicago: Planning and Designing Wayfinding Systems for the City of Chicago  
Advisor: Professor Charles J. Hoch
- 2007–2012 **Urban Planning and Design, B.A..**  
University of Mazandaran, Babolsar, Iran  
Thesis: Designing and Understanding Wayfinding Systems Using GIS  
Advisor: Mohammad Reza Haghju, Ph.D.

## Academic Work Experience

- May. 2021–  
present **Postdoctoral Scholar**, *Northwestern University, Joint at Department of Computer Science and Psychology*, Information Visualization, Perception, Persuasion.
- Sept. 2019–  
June 2020 **Research Assistant**, *College of Computing and Informatics, University of North Carolina at Charlotte* Developing interactive interface for learning analytics of computation students.
- Sept. 2017–  
Sept 2019 **Research Assistant**, *Charlotte Visualization Center, (University of North Carolina at Charlotte)* developing visual analytics systems for understanding misinformation on social media.

- Aug. 2015– **Research Assistant**, *Digital Arts Center, (University of North Carolina at Charlotte)*  
 May 2017 Developing a visual tool for urban planners to make sense of human activity on social media.
- Aug 2014– **Research Associate**, *Complex and Sustainable Urban Networks (CSUN) Lab, (University of Illinois at Chicago)*  
 May 2016 Analysis of Street Networks in the context of resiliency to extreme events.
- May 2015– **Research Specialist**, *Department of Disabilities and Human Development, (University of Illinois at Chicago)*  
 Aug 2015 Analysis of movement patterns of individuals with disabilities using GIS and GPS data.
- Sep 2013– **Research Assistant**, *Asians with Disabilities Outreach Project Think-tank (ADOPT), (University of Illinois at Chicago)*  
 May 2014 regional and national analysis of disparities for individuals with disabilities.
- Jan 2013– **Research Assistant**, *Department of Disabilities and Human Development, (University of Illinois at Chicago)*  
 May 2014 GIS analysis of GPS data to understand mobility patterns of individuals with disabilities.

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## Teaching Experience

- Spring 2021 **Co-Instructor**, UNC Charlotte, School of Architecture.  
 Computational Design Studio: Machine Learning in Architecture
- Fall 2020 **Co-Instructor**, UNC Charlotte, School of Architecture.  
 Computational Design Studio: Developing a Collaborative Urban Decision-Making tool using unsupervised machine learning
- Falls 2020 & 2019 **Instructor**, UNC Charlotte, School of Architecture, Ideas Seminar.  
 Introductory Seminar on Computational Methods for Design. Teaching concepts such as object oriented programming, Internet of Things, physical computing, and data visualization
- Summers 2018 & 2019 **Teaching Assistant**, UNC Charlotte, College of Computing and Informatics, Visual Analytics.  
 Web-based programming methods for information visualization and analytics
- Springs 2016 & 2017 **Co-Instructor**, UNC Charlotte, School of Architecture, Digital Design & Cite.  
 Understanding urban spaces through data. A mixture of theory and computational methods

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## Professional Work Experience

- Dec. 2020– **Visualization Consultant**, *Immigrant and Refugee Capacity Building Network, University of Illinois at Chicago*  
 July 2021 Analyzing and visualizing immigrant and refugee related geographic data for the state of Illinois .

- Jan 2014– **Wayfinding Planner**, *Regional Transportation Authority of Northeastern Illinois*  
Aug 2015 Planning and designing wayfinding systems for Chicago Public Transportation Hubs.  
Mar 2013– **Land Use Analyst**, *Blacks In Green (BIG)* Sustainable Land Use Planning for the  
Nov 2013 Neighborhood of West Woodlawn Chicago.

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## Books

- Sauda, Eric, Ginnette Wessel, and **Alireza Karduni**. "Social Media and the Contemporary City" Book Accepted for publication under Routledge, Planning and Urban Design. Expected November 2021

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## Publications

- Journal Article **Karduni, Alireza**, Ryan Wesslen, Doug Markant, and Wenwen Dou. "Images, Emotions, and Credibility: Effect of Emotional Facial Images on Perceptions of News Content Bias and Source Credibility in Social Media" Submitted ACM CHI Conference on Human factors in computing systems, 2022
- Journal Article Ryan Wesslen, **Karduni, Alireza**, Doug Markant, and Wenwen Dou. "Effect of uncertainty visualizations on myopic loss aversion and equity premium puzzle in retirement investment decisions" Upcoming in Transactions in Visualization and Computer Graphics, 2021
- Journal Article A Narechania, **Karduni, Alireza**, Ryan Wesslen, and Emily Wall. "VITALITY: Promoting Serendipitous Discovery of Academic Literature with Transformers & Visual Analytics" Upcoming in Transactions in Visualization and Computer Graphics, 2021
- Journal Article **Karduni, Alireza**, Ryan Wesslen, Doug Markant, and Wenwen Dou. "A Bayesian cognition approach for belief updating of correlation judgement through uncertainty visualizations" Transactions in Visualization and Computer Graphics, 2020
- Conference Proceedings **Karduni, Alireza**, Ryan Wesslen, Isaac Cho, and Wenwen Dou. "Wrapped Bar Charts: Visualizing Disporportionate Values" ACM CHI Conference on Human factors in computing systems, 2020
- Conference Proceedings Sashank Santhanam, **Alireza Karduni**, Samira Shaikh "Studying the Effects of Cognitive Biases in Evaluation of Conversational Agents" ACM CHI Conference on Human factors in computing systems, 2020
- Journal Article **Karduni, Alireza**, and Eric Sauda. "Anatomy of a Protest: Local Community, Social Media, and Urban Space" Social Media + Society, 2020
- Conference Proceedings **Karduni, Alireza** "Effects of facial expressions on individuals' decision making outcomes about misinformation" In progress, abstract to be presented at Society of Affective Science 2020.

📞 +1 (512) 605 9264 • ✉ [alireza.karduni@northwestern.edu](mailto:alireza.karduni@northwestern.edu)

🌐 [www.karduni.com](http://www.karduni.com)

- Book Chapter **Karduni, Alireza**, and Eric Sauda. "Bridging the Information and Physical Space: Measuring Flow from Geo-Located Social Media Data on the Street Network." In International Conference on Computers in Urban Planning and Urban Management, pp. 85-98. Springer, Cham, 2019.
- Journal Article Wesslen, Ryan, Sashank Santhanam, **Alireza Karduni**, Isaac Cho, Samira Shaikh, and Wenwen Dou. "Investigating Effects of Visual Anchors on Decision-Making about Misinformation." In Computer Graphics Forum, vol. 38, no. 3, pp. 161-171. 2019.
- Journal Article Wessel, Ginette, **Alireza Karduni**, and Eric Sauda. "The image of the digital city: revisiting Lynch's principles of urban legibility." Journal of the American Planning Association 84, no. 3-4 (2018): 280-283.
- Preprint **Karduni, Alireza** "Human-Misinformation interaction: Understanding the interdisciplinary approach needed to computationally combat false information". Chapter from doctoral thesis.
- Conference Proceedings **Karduni, Alireza**, Isaac Cho, Ryan Wesslen, Sashank Santhanam, Svitlana Volkova, Dustin L. Arendt, Samira Shaikh, and Wenwen Dou. "Vulnerable to misinformation?: Verifi!." In Proceedings of the 24th International Conference on Intelligent User Interfaces, pp. 312-323. ACM, 2019.
- Conference Proceedings **Karduni, Alireza**, Ryan Wesslen, Sashank Santhanam, Isaac Cho, Svitlana Volkova, Dustin Arendt, Samira Shaikh, and Wenwen Dou. "Can you verifi this? studying uncertainty and decision-making about misinformation using visual analytics." In Twelfth international AAAI conference on web and social media. 2018.
- Book Chapter Sauda, Eric, Ginette Wessel, and **Alireza Karduni**. "Data and design: using knowledge generation/visual analytic paradigms to understand mobile social media in urban design." In Humanizing Digital Reality, pp. 537-545. Springer, Singapore, 2018.
- Conference Proceedings Cho, Isaac, Ryan Wesslen, **Alireza Karduni**, Sashank Santhanam, Samira Shaikh, and Wenwen Dou. "The anchoring effect in decision-making with visual analytics." In 2017 IEEE Conference on Visual Analytics Science and Technology (VAST), pp. 116-126. IEEE, 2017.
- Journal Article **Karduni, Alireza**, Isaac Cho, Ginette Wessel, William Ribarsky, Eric Sauda, and Wenwen Dou. "Urban space explorer: a visual analytics system for urban planning." IEEE computer graphics and applications 37, no. 5 (2017): 50-60.

- Book **Karduni, Alireza**, Isaac Cho, Ginette Wessel, Wewen Dou, William Ribarsky, and Chapter Eric Sauda. "Urban Activity Explorer: Visual analytics and planning support systems." In International Conference on Computers in Urban Planning and Urban Management, pp. 65-76. Springer, Cham, 2017.
- Journal **Karduni, Alireza**, Amirhassan Kermanshah, and Sybil Derrible. "A protocol to Article convert spatial polyline data to network formats and applications to world urban road networks." Nature Scientific data 3 (2016): 160046.
- Conference Kermanshah, Amirhassan, **Alireza Karduni**, Farideddin Peiravian, and Sybil Derrible. "Impact analysis of extreme events on flows in spatial networks." In 2014 IEEE Proceedings International Conference on Big Data (Big Data), pp. 29-34. IEEE, 2014.

## Talks

- "Visual Analysis for Social Good" at NSF summit for technology and social good, 2020
- "Visualizing Tweets: New Data-Driven Methods of Urban Analysis" at Association Collegiate Schools of planning 2016
- "Design of pedestrian wayfinding signage systems" at ESRI UC 2013

## volunteer and Community Experience

- Jun. 2021 - **Workshop organizing Committee**, TREX: IEEE Vis Workshop on Trust and Experience in Visual Analytics.
- Jan. 2017– **Editor**, *American Planning Association Technology Division* Editor for Planning and Dece. 2020 *Technology Today* Quarterly Publication.
- **Peer Review**, CHI, Computer Graphics and Applications, Computer Graphics Forum, Computers in Urban Planning and Management, IEEE Vis, IEEE Virtual Reality, Applied Network Science, EDRA .

## Art Installations

- In progress **Paramteric Calvino**, *Project Lead by Alireza Karduni*, Computational imagination of Italo Calvino's Invisible Cities.
- 2019 **User Agreement**, *Project Lead by Professor Eric Sauda*, Team project to create interactive spatial music performance using smartphone and bluetooth beacon technology.
- 2018 **AirHugs**, *Project Lead by Professor Rachel Dickey*, Team project to create responsive inflatable environments using computer vision.

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## Honors & Awards

- 2020 **Honorable Mention Paper Award**, *Studying the effects of cognitive biases in evaluation of conversational agents*, ACM CHI2020.
- 2020 **ARCC Research Incentive Award**, *Reconfigurable Space: Kinematic Environments Controlled with Computer Vision*, Co-PI.
- 2017 **ARCC King Medal for Excellence in Architectural and Environmental Research**.
- 2016 **Digital Design Scholarship**, UNC Charlotte.
- 2016 **I-Corps round 1 funding**, National Science Foundation.

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## Skills

- Programming Python, Javascript, C#, R
- Databases SQL, MongoDB
- Machine Learning scikit-learn, Tensorflow, Keras, Gensim, Spacy, Huggingface
- Interactivity Unity3D, WebGL, ThreeJS, D3.JS, Processing
- Web HTML, CSS, React, NodeJS
- Other Illustrator, Photoshop, Corel Draw, Indesign, ArcGIS, QGIS, PostGIS, Leaflet