

Leilei Duan

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CURRENT APPOINTMENT

Part-time Faculty (2024 - present) Institute for Environmental & Spatial Analysis, University of North Georgia

EDUCATION

Ph.D. Design, Construction and Planning, University of Florida, 2018
Dissertation: Exploring Geodesign: Using Three-dimensional Parametric Modeling Techniques in Conjunction with Two-dimensional Land-use Models to Better Visualize Future Growth
Advisor: Paul Zwick

M.S. Interdisciplinary Ecology, University of Florida, 2018

M.S. Urban and Regional Planning, University of Florida, 2014

B.S. Urban Management, East China University of Science and Technology, 2011

B.S. (minor) Finance, East China University of Science and Technology, 2011

PROFESSIONAL EXPERIENCE

2017 – present Co-founder and administrator for Geodesign Wiki website:
<https://geodesignwiki.github.io/>

2023 International Geodesign Collaboration, University of Minnesota, GIS Project Coordinator

2019 - 2023 Spatial Sciences Institute, University of Southern California, Los Angeles, California Lecturer

2018 - 2019 Spatial Sciences Institute, University of Southern California, Los Angeles, California Post-doctoral Teaching Fellow

2014 – 2018 Research assistant at College of Design, Construction and Planning
Supervisor: Dr. Paul Zwick, Dr. Ilir Bejleri
Explored the Geodesign workflow in population and employment allocation process
Analyzed statewide traffic safety data; explored the impact of land use patterns changes on traffic crashes.

2016 RS&H, Tampa, Florida (Summer 2016)
Visualization Intern

- Created 3D models of the City of Tampa using CityEngine to support the Tampa Bay Expressway (TBX) project, and provided GIS demographic data and built environment data analysis support.
- 2015 RS&H, Jacksonville, Florida (Summer 2015)
Transportation Planning Intern
- Provided GIS analysis support for multiple projects, developed part of the GIS Technician Guide for RS&H, and hosted two Lunch and Learn events presenting new GIS techniques that can be applied to the current workflow.
- 2010 Kunming Urban Planning and Design Institute, Kunming, China (Summer 2010)
Transportation Planning Intern
- Involved in urban district reformation, and conducted relevant environment evaluations.
- 2010 Kunming City Planning Bureau, Kunming, China (Summer 2010)
Transportation and Environmental Planning Intern
- Participated in green field planning of Panlong District

PROFESSIONAL CERTIFICATE

2022 – present GISP (No. 161391)

HONORS AND AWARDS

University of Florida, Gainesville

2014 - 2018 Graduate School Fellowship
2017 Outstanding International Student Award

PUBLICATIONS

Referred Journal Articles

2022 Bacevice, P., Ruddell, D., and **Duan, L.** (2022) Bell Works: Lessons from a Transformational Redevelopment. Available at SSRN: <https://ssrn.com/abstract=4109273> or <http://dx.doi.org/10.2139/ssrn.4109273>

2019 Murtha, T., Wang, L. & **Duan, L.** (2019). Historical Analysis of Land Use Change and Geodesign of Rapid Urbanization: Orlando, Florida, USA. *Journal of Digital Landscape Architecture, 4-2019*, 205 – 212.

Manuscripts in Preparation

Chen, E & Duan, L. “A Two-step Floating Catchment Area (2SFCA) Method to Evaluate Electric Vehicle Infrastructure Accessibility in Los Angeles.” *Journal of Transport Geography*. (in preparation)

Duan, L., Lin, Y. & Chiang, Y.-Y. “Geodesign in the Era of Big Data and Artificial Intelligence.” *International Journal of Geographical Information Science*. (in preparation)

Duan, L., Zwick, P. & Mao, L. “Proposing a Three-digit Index to Better Understand Urban Quality of Life.” *Sustainability*. (in preparation)

Duan, L., Zwick, P. & Bejleri, I. “Exploring the Use of Procedural Three-dimensional Modeling Techniques to Visualize Urban Form Changes.” *Journal of Urban Design*. (in preparation)

PRESENTATIONS

Conference Presentations

- 2023 “A Multi-Platform Workflow to Enhance Visual Impact Assessment in Geodesign Project” Geodesign Summit. Redlands, California, April 11-12.
Presentation video recording: <https://bit.ly/3Imlu5H>
- 2022 “Examining the Equity of Access to Health Care: A Comparison Between Shanghai and Los Angeles” American Collegiate Schools of Planning Annual Conference. Online. Nov 3-5.
- 2021 “Training the Next Generation Geodesign Practitioners for Leveraging AI in Environmental Sciences” 3rd NOAA AI Workshop. Online. September 13-17.
- 2020 “Procedural Modeling in Active Transportation (Bus, Bike, Walk) for City Sustainable Development.” Geodesign Summit. Redlands, California. February 24-27.
Presentation video recording: <https://bit.ly/3aIqKDy>
- 2019 “How Learning Happens in Geodesign” Education, Design and Practice – Understanding skills in a Complex World. Stevens Institute of Technology. Hoboken, New Jersey. June 17-19..
- 2019 “Exploring Geodesign: Using Three-dimensional Parametric Modeling Techniques in Conjunction with Two-dimensional Land Use Models to Better Visualize Future Growth” American Association of Geographers. Washington DC. April 3-7..
- 2019 “Generalized Procedural Rules for TOD & Urban Allocations” Geodesign Summit. Redlands, California. Feb 25-28..
Presentation video recording: <https://bit.ly/2Vwd54X>
- 2018 “Exploring Geodesign: Using Three-dimensional Parametric Modeling Techniques in Conjunction with Two-dimensional Land Use Models to Better Visualize Future Growth” American Collegiate Schools of Planning Annual Conference. Buffalo, New York. Oct 25-28.
- 2017 “Detecting Development Opportunities Using Quality of Life Research and Land Use Suitability Modeling: A Case Study of the City of Tampa” American Collegiate Schools of Planning Annual Conference. Denver, Colorado. Oct 12-15.
- 2017 “Using 3D-GIS Based Parametric Modeling to Understand the Future Growth of Cities” Urban and Regional Information Systems Association Annual Conference. Jacksonville, Florida. Oct 23-26.
- 2017 “Using 3D parametric modeling to understand the future growth of cities: Simulating 3D infill allocation in the City of Tampa” 8th International Visualization in Transportation Symposium: Visualization in Action. Washington, DC. July 27-28.
Presentation video recording: <https://bit.ly/2Hp4qNI>

- 2016 “Exploring Volumetric Population Allocation Based on a Trend Growth Model: A Case Study of Infill Allocation in the City of Tampa” American Collegiate Schools of Planning Annual Conference. Portland, Oregon. Nov 3-6.
- 2015 “Exploring the Use of Three-Dimensional Urban Simulation to Model Development Opportunities Based on Suitability Modeling and FBC Regulations” American Collegiate Schools of Planning Annual Conference. Houston, Texas. Oct 21-25.
- 2014 “Three-Dimensional Urban Simulation for Form-Based Codes” Florida American Planning Association Conference. Jacksonville, Florida.

Conference Panels Organized

- 2019 “Geodesign – Current research and practice” American Association of Geographers. Washington DC. April 3-7.
- 2017 “Pedagogy in Geodesign Education” American Collegiate Schools of Planning Annual Conference. Denver, Colorado. Oct 12-15.

Webinars and Videos

- 2022 New Economy Majors Info Session (hosted by Estrela Consulting). Online. April 28 (co-presentation with S. Fleming).
- 2021 “Virtual Information Session GIS in Sustainable Cities and Urban Planning” GIST Recruitment Webinar. Online. March 11 (co-presentation with R. Vos).
- 2021 “Using the Spatial Sciences to Reimagine the Future: Creating a Healthier, Livable, and Sustainable World” International Academy Webinar. Online. January 26 (co-presentation with J. P. Wilson).

Invited Talks

- 2023 “Generalized Procedural Rules for TOD & Urban Allocations” 7th CityEngine User Meeting. Redlands, California. April 13.
- 2022 “Geodesign and Potential AI Applications” GeoAI Research Discussion. University of Minnesota. February 10.
- 2021 “Tech in Planning” American Planning Association Central Coast Planning Academy. Online. April 7.
- 2020 “Discussion about Urban Streets Functionalities”. USC Prison Education Project Faculty Forum. Online. October 16.
- 2019 “Discussion about Urban Streets Functionalities”. USC Prison Education Project Faculty Forum. California Institution for Men in Chino. November 16.
- 2019 “Generalizable Procedural Rules for TOD & Urban Allocations” (co-presentation with D. Wasserman). Brown Bag Talk at Spatial Sciences Institute. February 19.

Interviews

Duan, Leilei. Interviewed by Zbrog, Matt. (2020) How GIS Analysis are Using Maps to Help Cities During COVID-19 and Beyond. Online Engineering Programs

Article link: <https://www.onlineengineeringprograms.com/features/urban-gis-analysts>

TEACHING EXPERIENCE

Student Awards under My Supervision

- 2023 “A Two-step Floating Catchment Area (2SFCA) Method to Evaluate Electric Vehicle Infrastructure Accessibility in Los Angeles”, Eileen Chen – winner of the student StoryMaps competition at the Geospatial Summit 2023; two honorable mentions at the USC Undergraduate Symposium for Scholarly and Creative Work.
- 2021 “Dining on the Streets”, Alexa Weintraub – top ten finalists in the student category of the 2020 ArcGIS StoryMaps Competition for the Sustainable Development Goals hosted by United Nation.

Current Courses Taught

University of North Georgia, Watkinsville

GEOG 1111K Physical Geography Spring 2024

Courses Taught

University of Southern California, Los Angeles

Undergraduate Courses

SSCI 135g Maps in Digital World Spring 2023, Fall 2022, Spring 2022, Spring 2021

SSCI 201 Principles of Geodesign (course redesigned in Fall 2019) Spring 2023, Fall 2022, Spring 2022, Fall 2021, Spring 2021, Fall 2020, Spring 2020, Fall 2019

SSCI 313 Global Geodesign and Stakeholder Engagement (new course created in Fall 2020) Fall 2021, Fall 2020

SSCI 402 Geospatial Technology Management for Sustainability Science (new course created in Fall 2020) Fall 2022, Fall 2021, Fall 2020

Graduate Courses

SSCI 572 GIS and Landscape Architecture (new course created in Fall 2020) Fall 2021, Fall 2020

SSCI 581 Concepts for Spatial Thinking (residential and online session) Summer 2022, Summer 2021, Spring 2020

SSCI 585 Geospatial Technology Project Management Summer 2021

University of Florida, Gainesville

Undergraduate Courses

URP 4230 3D Modeling, Visualization and Simulation (new course created in Fall 2017) Fall 2017

Labs and Discussion Instructor

University of Southern California, Los Angeles

SSCI 265 Water Planet	Spring 2022, Fall 2019, Spring 2019, Spring 2022
SSCI 301 Maps and Spatial Reasoning	Fall 2019, Fall 2018
SSCI 401 Geospatial Intelligence	Fall 2019, Fall 2018
SSCI 382L Principles of Geographic Information Science	Spring 2019
SSCI 383L Geospatial Modeling and Customization	Spring 2019
SSCI 214g Human Populations and Natural Hazards	Fall 2018

Teaching Assistant

University of Florida, Gainesville

LAA 6656/ URP 6341 Environmental Design and Planning Practicum (Geodesign)	Spring 2018
URP 6272 Spatial Analysis	Spring 2018, Spring 2017, Spring 2016
URP 6905 Urban Coastal Analysis	Fall 2017
URP 6872 Planning & Design II	Spring 2017
URP 6905 Geodesign Studio	Fall 2016
URP 6905 3D Geospatial Urban Modeling & Visualization	Fall 2016
URP 6871 Planning & Design I	Fall 2015, Fall 2016
URP 6374 Geodesign Studio	Fall 2013

Dissertations and Thesis Committee Served

Committee Chair

University of Southern California, Los Angeles

MS in Geographic Information Science and Technology

2022	Jerome Wu. Accessibility of Community Resources and the Migratory Response of the Homeless Community in Los Angeles.
2021	Ariana Kim. Environmental Justice and Studying Correlation of Lead Toxicity with Various Social Indicators: A Case Study of Milwaukee.

Committee Member

University of Southern California, Los Angeles

MS in Geographic Information Science and Technology

2023	Erik Huisman. Advancing Redwood City's Bicycle Infrastructure Through a Geodesign Workflow
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- 2023 Melissa Khatry. Rails to Trails Web Mapping Application for the Great Redwood Trails: Mapping Northern California’s Trails
- 2022 Geoff Shreve. Spatiotemporal Hotspots of Crime in Houston, TX.
- 2022 Taylor Robinson. Pharmacy Shortage Areas Across the United States and a Visual Representation by a Web Mapping Application.
- 2022 Cole Heap. That Sinking Feeling: Predicting Land Subsidence with a Spatio-Temporal Regression Model in the San Joaquin Valley, CA.
- 2021 Chelsea Valenzuela. The Inequitable Distribution of Superfund Sites in Northern California.
- 2021 Andre McClure. Suitable California Opportunity Zone (COZ) Locations for Affordable Housing Development in the Cities of Bakersfield, Los Angeles, and Palmdale.
- 2020 Emily Bartee. Roadway Hazard Analysis: A Safe Ride for Motorcycles
- 2020 Amanda Cuesta. Filling in the Gaps: 3D Mapping Arizona’s Basin and Range Aquifer in the Prescott Active Management.
- 2020 Alexander Toy. Angeles Hike Finder: Creating a Spatial Database and Web Application to Discover Hikes Based on Attributes and Difficulty.
- 2020 Rebecca Wilson. Alaska Hike Search: Designing a mapping application for Alaskan trails and user contributed hazards.

PROFESSIONAL SERVICE

University of Southern California, Los Angeles

- 2021 - 2023 Vice President of the Nu Theta Chapter of Gamma Theta Upsilon
- 2021 - 2022 USC Dornsife Faculty Council
- 2022 Spatial Sciences Institute Merit Review Committee
- 2022 SSI M.S. GIST Thesis Awards Committee
- 2022 USC Esri EDC Student of The Year Award Committee
- 2021 USC Gateway Internship Program – mentor for Will Forker
- 2021 USC Geodesign Fellow – Fellow Selection Committee
- 2021 USC Esri EDC Student of The Year Award Committee
- 2020 Spatial Sciences Institute Merit Review Committee
- 2020 USC Geodesign Fellow – Fellow Selection Committee
- 2020 USC Esri EDC Student of The Year Award Committee
- 2020 SSI M.S. GIST Thesis Awards Committee
- 2019 USC Geodesign Fellow – Fellow Selection Committee
- 2019 USC Gateway Internship Program – mentor for Julie Ho

University of Florida, Gainesville

2016 – 2017

Esri Campus Ambassador

ACADEMIC REVIEWS

Transactions in GIS

European Journal of Educational Research

Oxford Research Encyclopedia of Global Public Health

PROFESSIONAL SOCIETY MEMBERSHIPS

Gamma Theta Upsilon Honor Society

American Planning Association (APA)

Association of American Geographers (AAG)

Association of Collegiate Schools of Planning (ACSP)

SKILLS AND METHODS

Statistical and Computational Methods

Multivariate statistics, data mining, data analysis with Python and R.

Three-dimensional Modeling Methods

Computer Generated Architecture (CGA) language creation and editing, CityEngine, SketchUp, 3D GIS.

Web Developing Methods

HTML5, CSS

Geospatial Method

GIS, spatial analysis and modeling

Language Skills

Fluent in English and Chinese.

Last Updated January 2024