**KENAN LI, Ph.D.**

Spatial Sciences Institute

USC Dana and David Dornsife

College of Letters, Arts and Sciences

University of Southern California Office: (213)740-5910

3616 Trousdale Parkway, AHF 146 Cell Phone: (225)610-2559

Los Angeles, CA 90089-0374 Email: kenanl@usc.edu

**EDUCATION**

|  |  |  |
| --- | --- | --- |
| Ph.D. | 2011-2015 | Environmental Science, Louisiana State University |
| M.S. | 2009-2011 | Environmental Science, Louisiana State University |
| B.A. | 2005-2009 | Environmental Science, Nankai University, Tianjin, China  (Minor in Applied Mathematics) |

**PROFESSIONAL EXPERIENCES**

|  |  |
| --- | --- |
| 2019- | Research Scientist, Spatial Sciences Institute, University of Southern California, Los Angeles, CA. |
| 2017-2019 | **Postdoctoral Research Associate**, Department of Preventive Medicine, Keck School of Medicine of USC, Los Angeles, CA. |
| 2016-2017 | **Data Scientist**,Data Application Lab, Los Angeles, CA. |
| 2009-2016 | **Research Assistant**, Department of Environmental Sciences, Louisiana State University, Baton Rouge, LA. |

**PUBLICATIONS**

**Refereed Journal Articles:**

1. Lam, N.S.N., Qiang, Y., **Li, K.**, Cai, H., Zou, L., and Mihunov, V. (2018). Extending resilience assessment to dynamic system modeling: Perspectives on human dynamics and climate change research. *Journal of Coastal Research* 85: 1401-1405.
2. Lam, N.S.N., Xu, Y.J., Liu, K.B., Dismukes, D.E., Reams, M.A., Pace, R. K., Qiang, Y., Narra, S., **Li, K.**, Bianchette, T.A., Cai, H., and Zou, L. (2018). Understanding the Mississippi River Delta as a coupled natural-human system: research methods, challenges, and prospects. *Water* 10(8): 1054.
3. **Li, K.**, Habre, R., Deng, H., Urman, R., Morrison, J., Gilliland, F.D., Ambite, J.L., Stripelis, D., Chiang, Y.Y., Lin, Y., Bui, A.A.T., King, C., Hosseini, A., Vliet, E.V., Sarrafzadeh, M., and Eckel, S.P. (2018) Applying multivariate segmentation methods to human activity recognition from wearable sensors data. *JMIR-mHealth and uHealth* 7(2): e11201.
4. **Li, K.** and Lam, N.S.N. (2018). "A spatial dynamic model of population changes in a vulnerable coastal environment." *International Journal of Geographical Information Science* 32(4): 685-710.
5. **Li, K.** and Lam, N.S.N. (2018). Geographically Weighted Elastic Net: a variable-selection and modeling method under the spatially nonstationary condition. *Annals of the American Association of Geographers* 108(6): 1582-1600.
6. Zou, L., Kent, J., Lam, N.S.N., Cai, H., Qiang, Y., and **Li, K.** (2016). Evaluating land subsidence rates and their implications for land loss in the Lower Mississippi River Basin. *Water* 8(1): 10.
7. Li, X.L., Lam, N.S.N., Qiang, Y., **Li, K.**, Yin L.R., Liu, S., and Zheng, W.F. (2016). Measuring county resilience after the 2008 Wenchuan earthquake. *International Journal of Disaster Risk Science* 7(4): 393-412.
8. Lam, N.S.N., Reams, M., **Li, K.**, Li, C., and Mata, L.P. (2016). Measuring community resilience to coastal hazards along the northern Gulf of Mexico. *Natural Hazards Review* 17(1): 12.
9. Cai, H., Lam, N.S.N., Zou, L., Qiang, Y., and **Li, K.** (2016). Assessing community resilience to coastal hazards in the Lower Mississippi River Basin. *Water* 8(2): 18.
10. **Li, K.**, Lam N.S.N., Qiang, Y., Zou, L., and Cai, H. (2015). A cyberinfrastructure for community resilience assessment and visualization. *Cartography and Geographic Information Science* 42 (Suppl. 1): 34-39.
11. Cai, Z., Zhou Q.X., Peng, S.W., and **Li, K.** (2010). Promoted biodegradation and microbiological effects of petroleum hydrocarbons by Impatiens balsamina L. with strong endurance. *Journal of Hazardous Materials* 183(1-3): 731-737.

**Conference and Symposium Proceedings:**

1. Lin, Y., Chiang, Y.Y., Franklin, M., **Li, K.**, Eckel, S.P., and Ambite, J.L. (2020). An explainable deep learning architecture for fine-scale air quality prediction using web data. The Web Conference 2020 (Taipei). (In Press).

**Book Chapters:**

1. Lam, N.S.N, Xu, Y.J., Pace, R.K., Liu, K.B., Qiang, Y., Narra, S., Bianchette, T.A., Cai, H., Zou, L., **Li, K.**, Joshi, S., Mihunov, V. (2019). Collaboration across boundaries: reflections on studying the sustainability of the Mississippi River Delta as a Coupled Natural-Human System. In Perz SG (Ed.), *Collaboration Across Boundaries for Social-Ecological Systems Science: Experiences Around the World* (pp 361–393). Springer, Cham, Switzerland.

**Open-source Research Software/Libraries:**

1. **Li, K.** (2017). ABshape: a GIS based platform for agent-based modeling in Python. <https://github.com/Kenan-Li/Abshape>.
2. **Li, K.** (2019). Dynamic Time Warping Self-Organizing Map. <https://github.com/Kenan-Li/dtwsom>.
3. **Li, K.** (2019). Geographically Weighted Elastic Net. <https://github.com/Kenan-Li/gwen>.

**Manuscripts Submitted or Under Construction:**

1. **Li, K.**, Sward, K., Deng, H., Morrison, J., Habre, R., Franklin, M., Chiang, Y.Y., Gilliland, F., Ambite, J.L., and Eckel, S.P. Dynamic time warping self-organizing maps to discover diurnal patterns in the residential exposure time-series of asthmatic patients. *Environmetrics*. (In Preparation).
2. **Li, K.**, Deng, H., Morrison, J., Habre, R., Franklin, M., Gilliland, F., Ambite, J.L., and Eckel, S.P. Using wavelets transformation to discover time series shapelets. *Sensors*. (In Preparation).
3. **Li, K.**, Deng, H., Morrison, J., Habre, R., Franklin, M., Gilliland, F., Ambite, J.L., and Eckel, S.P. Applying multi-variate dynamic time warping self-organizing maps to the cities in the NMMAPS database to estimate the mortality effects of particulate matter air pollution patterns. *Occupational and Environmental Medicine*. (In Preparation).
4. **Li, K.** and Lam, N.S.N. ABshape: a GIS based platform for agent-based modeling in Python. *Environmental Modelling & Software*. (In Preparation).
5. **Li, K.**, Lam, N.S.N., Cai., H., and Zou, L. Assessing the sustainability of Coupled Natural-Human systems using coupled differential equations. *Ecological Society of America*. (In Preparation).

**PRESENTATIONS**

**Conferences and Workshops:**

|  |  |
| --- | --- |
| 2019 | Annual Meeting of Association of American Geographers (AAG). Topic: Predicting asthma symptoms with a Long-Short-Term Memory neural network and Automatic Feature Extraction using Convolutional Autoencoder. Washington D.C.. |
| 2018 | Annual Meeting of Association of American Geographers (AAG). Topic: Deep Learning in Geographical Object Detection: The Gap, the Trend and the Future. New Orleans, LA. |
| 2017 | Agent-Based Modeling (ABM): A Symposium That Advances the Science of ABM. Topic: Introduction to an open-source python platform for agent-based modeling in coupled natural and human systems. San Diego, CA. |
| 2016 | Southern California Data Science Conference. Topic: Integrating Geospatial Analytics into Traditional Machine Learning Algorithms. Los Angeles, CA. |
| 2016 | Annual Meeting of Association of American Geographers (AAG). Topic: An Agent-Based Model of Population Changes in a Vulnerable Coastal Environment. San Francisco, CA. |
| 2015 | Annual Meeting of Association of American Geographers (AAG). Topic: A Cyberinfrastructure for Community Resilience Assessment and Visualization. Chicago, IL |
| 2014 | Annual Meeting of Association of American Geographers (AAG). Topic: A Hybrid Model of Cellular Automata, Markov, and Logistic Regression for Land Change Prediction in the Lower Mississippi River Basin. Tampa, FL. |
| 2013 | Annual Meeting of Association of American Geographers (AAG). Topic: Residential Relocation and Local Resilience in the Lower Mississippi River Basin. Los Angeles, CA. |
| 2012 | State of the Coast Conference. Topic: Temporal Changes of Coastal Community Resilience in Gulf of Mexico Region. New Orleans, LA. |
| 2011 | Annual Meeting of Association of American Geographers (AAG). Topic: Temporal Changes of Coastal Community Resilience in Gulf of Mexico Region (I also chaired this paper session). Seattle, WA. |

**Invited Lectures, Seminars, & Talks:**

|  |  |
| --- | --- |
| 2019 | International Young Scholar Symposium. Topic: Spatial data sciences in environmental health. College of Surveying and Geo-Informatics, Tongji University, Shanghai. |
| 2018 | 2nd Shangshi Symposium. Topic: Integrating deep learning in social resilience assessment. Donghua University, Shanghai. |
| 2018 | 2018 mHealth Collaboratory Inaugural Mobile/Connected Health Symposium. Topic: Applying Multivariate Segmentation Methods to Human Activity Recognition from Wearable Sensors Data. USC, Los Angeles, CA. |
| 2017 | Geo-sciences Symposium. Topic: Geographically Weighted Elastic Net: A Variable-Selection and Modeling Method under the Spatially Nonstationary Condition. Department of Geography, University of Missouri, Columbia, MO. |

**PARTICIPATED PROJECTS**

|  |  |
| --- | --- |
| 2020 - | “Healthy Young Men’s (HYM) Study” by Michele Kipke. Funded by NIH. |
| 2020 - | “Automatically Geo-reference and Geo-tag Aerial Images”. Contract with U.S. Army Corps of Engineers. |
| 2020 - | “Los Angeles County Trail Address Systems”. Contract with Los Angeles County and Accenture plc. |
| 2017- | “PRISMS Data and Software Coordination and Integration Center (DSCIC)” by Jose-Louis Ambite and Frank Gilliland. Funded by NIH. |
| 2014-2016 | “Coastal SEES Collaborative Research: Sustainability of Deltaic Coasts - The Trillion Dollar Problem” by Robert Twilley. Funded by NSF. |
| 2011-2015 | “CNH: Coupled Human and Natural Dynamics in a Vulnerable Coast System” by Nina Lam. Funded by NSF. |
| 2010-2013 | “Development of an Empirical Model for Measuring Community Resilience” by Nina Lam. Funded jointly by USDA-NSF. |
| 2009-2011 | “Developing Indicators to Measure Socio-economic Impacts of OCS Activities: A temporal analysis of Counties within the Gulf of Mexico Region” by Margret Reams and Nina Lam. Funded by BOEM. |
| 2009-2011 | Geographic Information System part of “Geographic Units for Socioeconomic Impact Analysis in the Gulf of Mexico Region” by Nina Lam. Funded by BOEM. |

**ACADEMIC HONORS AND AWARDS**

|  |  |
| --- | --- |
| 2017 | ABM 2017 Star Award in 2017 Agent-Based Modeling Symposium Sponsored by National Science Foundation (BCS #1638446). |
| 2017 | ABM 2017 Professional Enhancement Award in 2017 Agent-Based Modeling Symposium Sponsored by National Science Foundation (BCS #1638446). |
| 2015 | Recognition for participation in the STEM Student Research Poster Presentations at the LSU Board of Supervisors Meeting 2015. |
| 2014 | “Top 10 Submission” in ESRI Global Disaster Resilience App Challenge 2014. App name: “Community Resilience Inference Measurement.” App link: <http://www.rsgis.envs.lsu.edu/climateapp2014/.> |
| 2014 | “10 Runners Up” in ESRI Climate Resilience App Challenge 2014. App name: “Community Resilience Inference Measurement.” App link: <http://www.rsgis.envs.lsu.edu/climateapp2014/.> |
| 2014 | Third Place award in a student poster competition in the 28th Louisiana Remote Sensing and GIS Workshop. Poster title: “A Hybrid Model of Cellular Automata, Markov, and Logistic Regression for Land Change Prediction in the Lower Mississippi River Basin.” |
| 2012 | The Sustainable Environment Award for Master Thesis from the Department of Environmental Sciences. Thesis title: “Temporal Changes of Coastal Community Resilience in the Gulf of Mexico Region.” |
| 2012 | First Place award in a student poster competition in the 26th Louisiana Remote Sensing and GIS Workshop. Poster title: “Temporal Changes of Coastal Community Resilience in the Gulf of Mexico Region.” |
| 2009 | First prize of “Creative Experimental Project of National Undergraduate Students” hold by National Ministry of Education of China. Research theme: “In-situ restoration of oil contaminated soil by plant”. |
| 2009 | Selected as a member of the “Hundred Young Teachers” Program of Nankai University, the candidates of which must have an excellent academic performance with a ranking among the top 5% of their peers. |
| 2007 | Third prize of “Excellent Undergraduate Scholarship” from Nankai University. |
| 2006 | Second prize of “Excellent Undergraduate Scholarship” from Nankai University. |

**ACADEMIC JOURNAL REVIEWS**

International Journal of Geographical Information Science

International Journal of Disaster Risk Science

Cities

PeerJ

IEEE Transactions on Cybernetics

IEEE Access

**PROFESSIONAL SERVICE**

|  |  |
| --- | --- |
| 2017- | Editorial Board, Remote Sensing, PiscoMed Publishing. |
| 2020 | 2020 USC Esri Development Center Student of The Year Award Committee. |

**COURSES TAUGHT**

|  |  |
| --- | --- |
| Fall 2019 | SSCI 265-35638, SSCI 265-35639, SSCI 265-35642. Water Planet. USC. |
| Spring 2020 | SSCI 265-35638. Water Planet. USC.  SSCI 383-35622, SSCI 383-35673. Geospatial Modeling and Customization. USC. |

Last updated, Nov 18th, 2019