Fan LEI

✉ Fan.Lei@asu.edu   ☐ +1-480-239-0391   ⚲ Tempe, AZ

EDUCATION

08/2019-present	**Ph.D. Candidate** in Computer Science	Arizona State University, USA
	Advisor: Ross Maciejewski	
	Thesis title: Visual Explanation Tools for Spatial Modeling	
	GPA : 4.0/4.0	
09/2013-01/2015	**M.S.** in Computer Science	Durham University, UK
	Advisor: Tobias Weinzierl	
	Master project: Visual Analytics Framework for Academic Collaboration	
	GPA : 4.0/4.0 (1st Honor, Distinction)	
03/2012-07/2013	**Bachelor of Engineering (BEng)** in Information Technology	Technische Hochschule Lübeck, Germany
	Advisor: Monique Janneck	
	Thesis title: Web Design Usability and the Techniques to Improve It	
	GPA : 88/100, (2:1) Honor	
09/2009-01/2012	**BEng** in Electrical Engineering	East China University of Science and Technology, China
	Bachelor project: J2EE-based Distributed System and Web Services	
	GPA : 88/100, (2:1) Honor	

RESEARCH INTERESTS

Visual Analytics, Information Visualization, Human-computer Interaction, Spatial Data Analysis, and Explainable AI (XAI)

RESEARCH EXPERIENCE

VADER Lab, Arizona State University
Graduate Research Associate with Dr. Ross Maciejewski   08/2019-present

2023 **Explaining the spatial deep-learning models**
Using LIME to explain the predictions of graph neural networks trained for geographic data
Relevant publication : W2

2022-2023 **Understanding the interplay between text and visualization**
Understanding reader takeaways in thematic maps under varying text, detail, and spatial autocorrelation
Relevant publication : W4

2021-2023 **Spatial data visualization and their interdisciplinary applications**
Highlighting and linting the potential design issues for thematic maps, proposing a design guideline under the cartographic regulations, and applying spatial data analytical pipeline to other research domains
Relevant publications : P2, W3
Demo : `https://youtu.be/0-jMkvnN7vE?si=doELd9toP22PnYhC`

2020-2023 **Spatial data analysis and model explanation**
Explaining sophisticated local spatial models with contextual information and narrative visualization
Relevant publication : P3,
Demo : `https://youtu.be/vC7hG7Atty8?si=i_ZyRfDmD6qpHm09`

Institute of Automation, Chinese Academy of Sciences
Research Assistant with Dr. Daniel Dajun Zeng, and Dr. Qiudan Li   06/2017-07/2018

2017-2018 **Catching dynamic heterogeneous user data for identity linkage learning in social networks**
Proposing an approach that combines explicit and latent feature fusion techniques to supplement and improve the user data fields in social media for identity linkage learning tasks
Relevant publication : P1

Department of Computer Science, Durham University
Master Project with Dr. Tobias Weinzierl   09/2013-01/2015

2013-2015	Data Collection, Processing and Visualization
	Developing an integrated data processing and visual analytics framework to collect, post-process, and visualize the information about the internal and external academic collaborations in the department of computer science of Durham University.

PUBLICATIONS

Published Papers (peer-reviewed)

P3. **F. Lei**, Y. Ma, A. S. Fotheringham, E. A. Mack, Z. Li, M. Sachdeva, S. Bardin, and R. Maciejewski. GeoExplainer: A visual analytics framework for spatial modeling contextualization and report generation. *IEEE Transactions on Visualization and Computer Graphics (To appear)*, 2023 (Accepted by IEEE VIS 2023)

P2. **F. Lei**, A. Fan, A. M. MacEachren, and R. Maciejewski. GeoLinter: A linting framework for choropleth maps. *IEEE Transactions on Visualization and Computer Graphics*, pp. 1–16, 2023. doi : **10.1109**/**TVCG**.**2023**.**3322372**

P1. **F. Lei**, Q. Li, S. Sun, L. Wang, and D. D. Zeng. Catching dynamic heterogeneous user data for identity linkage learning. In *2018 International Joint Conference on Neural Networks (IJCNN)*, pp. 1–8. IEEE, 2018. doi : **10.1109**/**IJCNN**.**2018**.**8489332**

Working Papers

W4. A. Fan, **F. Lei**, M. V. Mancenido, and R. Maciejewski. Understanding reader takeaways in thematic maps under varying text, detail, and spatial autocorrelation. Submitted to ACM CHI 2024 Conference (Arlen Fan and **Fan Lei** are co-first authors)

W3. **F. Lei**, J. Hong, D. A. Sampson, Y. Ma, and R. Maciejewski. FEWSim: exploring the nexus of food-energy-water simulations. Edting

W2. V. Srivastava, **F. Lei**, J. Hong, H. B. Dan Runfola, J. A. Sefair, and R. Maciejewski. Geo-LIME: explaining predictions of graph neural networks trained for geographic data. Drafting

W1. Y. Ma, J. Zhao, **F. Lei**, Y. Wang, M. V. Mancenido, E. K. Chiou, and R. Maciejewski. Trust and visualization. Edting

PROFESSIONAL EXPERIENCE

Software & Network Engineer	
Variable Supercomputer Tech Ltd., Jiangsu, China	08/2016-06/2017
**Software & Full-stack Engineer	Automatic Warehouse Project Manager**	
Tao Heung Group Ltd., Hong Kong, China	10/2014-05/2016
Web Development Engineer (Backend)	
ELEME Inc.(ele.me), Shanghai, China	11/2014-08/2015
Powertrain Manufacturing Safety Engineer Intern	
SAIC Volkswagen, Shanghai, China	09/2011-02/2012

SKILLS

Programming	JavaScript (**D3.js**, Leaflet, JQuery, etc.), **Python**, TypeScript, CSS+DHtml, PHP, Java (JEE, JSE), Microsoft .Net (C#), C/C++, SQL, R, MATLAB
Frameworks	**React**, Vue, Angular, Flask, Django, Spring, Hibernate, Laravel, Symfony
Database/storage	Microsoft SQL Server, MySQL, MongoDB, Redis
Misc.	Linux, LaTeX, Web Servers (Nginx, Apache, Node.js server), Project Management (RUP, Scrum)
Languages	English, Mandarin, German (basic)

MISCELLANEOUS EXPERIENCE & AWARD

2023	Oral presentation at the Doctoral Colloquium, IEEE VIS 2023 Conference
2022	Conference reviewer, IEEE Conference on Visualization & Visual Analytics (IEEE VIS 2022)
2013	The 1st Class Scholarship, Academic achievement award for top 1% students in East China University of Science and Technology

REFERENCES

Dr. Ross Maciejewski	Dr. Jieqiong Zhao	Dr. Yuxin Ma
Professor and Director, SCAI, ASU	*Assistant Professor*, AUGUSTA UNIVERSITY	*Associate Professor*, SUSTECH
✉ rmacieje@asu.edu	✉ jiezhao@augusta.edu	✉ mayx@sustech.edu.cn