Fan LEI

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EDUCATION

08/2019-08/2025	**Ph.D.** 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	**BEng** in Information Technology	Technical University of Applied Sciences 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

2025	**Using LLM to combat the potential misinformation in journalism**	
	Using an LLM-based approach to detect, annotate, and explain the deceptive elements in news articles	
	Relevant publication : W3	
2023-2025	**Explaining the spatial deep-learning models**	
	Using LIME to explain the predictions of graph neural networks trained for geographic data	
	Relevant publication : W1	
2022-2024	**Understanding the interplay between text and visualization**	
	Understanding reader takeaways in thematic maps under varying uncertainty and design considerations	
	Relevant publication : P4, W2	
2021-2023	**Spatial data visualizations 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 pipelines to other research domains	
	Relevant publications : P2, P5	
	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)

P5. **F. Lei**, D. A. Sampson, J. Hong, Y. Ma, G. Mascaro, D. White, R. Agarwal, and R. Maciejewski. FEWSim: a visual analytic framework for exploring the nexus of food-energy-water simulations. *IEEE Computer Graphics and Applications*, 2025, to appear. doi : 10.1109/MCG.2025.3581004

P4. A. Fan*, **F. Lei***, M. V. Mancenido, and R. Maciejewski. Understanding reader takeaways in thematic maps under varying text, detail, and spatial autocorrelation. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (*Arlen Fan and* **Fan Lei** *are co-first authors)*, 2024. doi : 10.1145/3613904.3642132

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*, 2023 (Accepted by IEEE VIS 2023). doi : 10.1109/TVCG.2023.3327359

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

W3. A. Fan*, **F. Lei***, S. R. Corman, and R. Maciejewski. Skeptik : A hybrid framework for combating potential misinformation in journalism. (*Co-first authors) Submitted to ACM Transactions on Interactive Intelligent Systems (TiiS), conditional acceptance

W2. V. Srivastava, **F. Lei**, M. V. Mancenido, A. M. MacEachren, and R. Maciejewski. Visualizing uncertainty on thematic maps and its impact on reader takeaways. Submitted to IEEE Transactions on Visualization and Computer Graphics (TVCG), under review

W1. V. Srivastava, **F. Lei**, D. Runfola, H. Baier, and R. Maciejewski. Geographically weighted locally interpretable model agnostic explanations. Submitted to ACM SIGSPATIAL 2025, under review

PROFESSIONAL EXPERIENCE

Data Visualization Research Intern
Epsilon Data Management, LLC., Chicago, USA   05/2024-08/2024

Software Engineer & Research Assistant
Institute of Automation, Chinese Academy of Sciences, Beijing, 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.(Alibaba Group), Shanghai, China   11/2014-08/2015

Powertrain Manufacturing Safety Engineer Intern
SAIC Volkswagen, Shanghai, China   09/2011-02/2012

SKILLS

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

MISCELLANEOUS EXPERIENCE & AWARD

2023-present	Journal/conference paper reviewer of IEEE VIS, TVCG, UIST, Information Visualization, ACM TIST
2023	Doctoral Colloquium, IEEE VIS 2023 Conference
2013	The 1st Class Scholarship, East China University of Science and Technology

REFERENCES

Dr. Ross Maciejewski
Professor and Director, SCHOOL OF COMPUTING AND AUGMENTED INTELLIGENCE, ARIZONA STATE UNIVERSITY
✉ rmacieje@asu.edu

Dr. Jieqiong Zhao
Assistant Professor, SCHOOL OF COMPUTER AND CYBER SCIENCES, AUGUSTA UNIVERSITY
✉ jiezhao@augusta.edu

Dr. Yuxin Ma
Associate Professor, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY
✉ mayx@sustech.edu.cn