



Geographic Information Science and Systems Specialty Group

An Association of American Geographers Specialty Group

2025 NEWSLETTER

Note from the Chair

Dear GISS Specialty Group Members,

I hope your September is off to a fantastic start! Welcome to the inaugural issue of the GISS Specialty Group newsletter! This marks the beginning of a new way to connect, celebrate our collective successes, and keep our vibrant GIScience community engaged. Special thanks to Dr. Yi Qiang for initiating and leading the production of this newsletter! We encourage all members to **visit our website aag-giss.org** and **follow us on social media (X: [@AAG_GISS](https://twitter.com/AAG_GISS))** for updates and engagement opportunities.

Looking back, the 2025 AAG Annual Meeting in Detroit was a tremendous success for GISS. In total, GISS sponsored 90 sessions covering topics from GeoAI and spatial modeling to environmental health, mobility, and sustainability. A highlight of the meeting was the Waldo Tobler Distinguished Lectures, which we proudly co-hosted with Transactions in GIS (TGIS). Many thanks to Dr. John Wilson, Editor-in-Chief of TGIS, for co-sponsoring this event. This year's lectures featured two distinguished GIScience scholars, Dr. Kathleen Stewart (University of Maryland) and Dr. Song Gao (UW-Madison). Their insightful talks drew large audiences and stimulated conversations at the frontiers of GIScience. Equally inspiring was our Student Paper Competition, which showcased the creativity and rigor of the next generation of GIS scholars. Ten finalists presented across two sessions, and we congratulate the winners: Yibo Zhao (UW-Madison, 1st Place), Zhangyu Wang (UCSB, 2nd Place), and Zhongfu Ma (University of Minnesota, 2nd Place). All winners were recognized during the GISS Award Ceremony and Reception.

Looking ahead, the **2026 AAG Annual Meeting** (<https://www.aag.org/events/aag2026/>) will be held in **San Francisco, March 17-21, 2026**. Abstract and organized session submissions are now open through the AAG submission portal. We will soon share details on the Student Paper Competition, the Tobler Lecture speakers, and our annual Award Ceremony. We warmly invite

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members to organize sessions and panels under the GISS banner, and we will be glad to sponsor and help promote these events organized by our members through our website and social media platforms.

I would like to express my sincere gratitude to our **Board of Directors (2024–2025)** for their outstanding service over the past year: Immediate Past Chair, **Dr. Song Gao** (UW–Madison); Vice Chair, **Dr. Gengchen Mai** (UT Austin); Academic Director, **Dr. Yingjie Hu** (University at Buffalo); Communications Director, **Dr. Yi Qiang** (University of South Florida); Commercial Director, **Dr. Nan Ding** (EZRouting); Government Director, **Dr. Samantha T. Arundel** (USGS); and Student Representative, **Dr. Binbin Lin** (Texas A&M University). Together with the support of our members, the Board successfully organized a series of signature events, including the Waldo Tobler Distinguished Lectures, the Student Paper Competition, and our annual award ceremony and reception. I would like to offer special thanks to Dr. Song Gao for his guidance as I stepped into the role of Chair; Dr. Gengchen Mai for helping organize several key events; Dr. Yingjie Hu for leading the Student Paper Competition; Dr. Yi Qiang for keeping our community well informed; Dr. Nan Ding for sponsoring the group and sharing industry opportunities; Dr. Samantha T. Arundel for bringing valuable government perspectives in GIScience and GeoAI; and Dr. Binbin Lin for preparing flyers, organizing sessions, and promoting them among our members.

It is a true honor to serve as Chair of the GISS Specialty Group, a community that has shaped my own academic journey. I first joined GISS as a student over ten years ago, and I remember how much I benefited from this big family. Our members were always willing to share opportunities, offer guidance, and support the growth of students, scholars, and practitioners in GIS. Now, I am grateful to give back to the community that helped me grow and discover my true passion for GIScience. I look forward to working with all of you to continue building a stronger and more innovative community, and I am confident that our future leaders will carry this momentum forward, making GISS an even more vibrant and welcoming home within AAG.

We hope this inaugural newsletter will serve as the starting point for building an even more vibrant GISS community that connects members worldwide and fosters collaboration across all corners of GIScience.

Thank you for being a valued member and for the many contributions you have made to our GISS-SG community! We always welcome your feedback, suggestions, and questions, and we look forward to meeting you in San Francisco next year.

Join us, and let's do something Spatial!

Best regards,



Lei Zou

Chair, GISS Specialty Group




GISS at 2025 AAG

Waldo Tobler Distinguished Lectures

This year, we were proud to host two distinguished speakers for the Tobler Distinguished Lectures at the 2025 AAG Annual Meeting in Detroit. Both talks were well attended and sparked engaging discussions at the forefront of GIScience.

Dr. Song Gao's lecture focused on cutting-edge developments in GeoAI. He provided a comprehensive overview of the evolution of GeoAI, exploring its applications in scientific discovery ("GeoAI for Science") and its theoretical foundations ("Science of GeoAI"). He introduced a suite of his recent projects covering topics such as spatial interpolation and prediction, trajectory data encoding, privacy protection, spatially explicit AI models, community detection, and spatial network analysis. Dr. Gao also discussed key challenges facing the field and shared insights on future directions to address them.



Dr. Song Gao
University of Wisconsin - Madison

**Artificial GIS Analyst:
From Spatial Questions to
Geospatial Intelligence**

Dr. Kathleen Stewart
University of Maryland - College Park

**Analyzing human mobility
using mobile device trajectory
data: A multi-year study
across the US**



Dr. Kathleen Stewart spoke about a multi-year project of developing the first national-level, multi-modal OD dataset for the United States. Drawing from passively collected smartphone trajectory data, the project estimates monthly and annual passenger trips across the U.S. Dr. Stewart highlighted the technical challenges of processing

massive volumes of mobile device data, removing duplicates, imputing trip characteristics, and scaling observations to reflect population-level travel behavior. The data product has great potential in supporting transportation planning, mobility analysis, and policy evaluation, offering a detailed, scalable view of nationwide travel patterns across time and space.









GISS at 2025 AAG

Student Paper Competition

The GISS Specialty Group hosted the Student Paper Competition at the 2025 AAG Annual Meeting to celebrate outstanding student research in GIScience. This year, we received 16 extended abstracts from students across North America, and 10 finalists were selected to present their work in two dedicated paper sessions. The competition continues to foster original scholarship and strong communication skills among emerging GIS scholars, with submissions covering a wide range of topics from GeoAI, spatial modeling, environmental health, disaster resilience, to mobility analysis.

Through a rigorous review process, we have selected the winners of the competition.

First Place	
	Yibo Zhao , University of Wisconsin- Madison Title: “Enhanced Origin-Destination Flow Prediction via Community Detection and Graph Attention Networks for Diverse Mobility Patterns”
Second place	
	Zhangyu Wang , University of California Santa Barbara Title: “LocDiffusion: Identifying Locations on Earth by Diffusing in the Hilbert Space”
	Zhongfu Ma , University of Minnesota Twin Cities Title: “Gravity-Informed Deep Flow Inference for Spatial Evolution in Panel Data”
Honorable Mentions	
	Yifan Yang , Texas A&M University Paper title: “Hyperlocal Disaster Damage Assessment Using Bi-Temporal Street-View Imagery and Pre-Trained Image Processing Models”
	Jasper Li , University of Southern California Paper title: “StreetviewLLM: Extracting Geographic Information Using a Chain-of-Thought Multimodal Large Language Model”
Finalists	
	Dan Qiang , McGill University Paper title: “Mobility Vitality: Measuring urban vibrancy through active and micro-mobility modes”
	Pawan Thapa , University of Alabama Paper title: “Medial Axis Transform Method for River Centerlines Extraction and Width Estimation”
	Haoyu Wang , University of Texas at Austin Paper title: “Search space reduction using species distribution modeling with simulated and sampled pollen signatures”
	Shiyan Zhang , The Pennsylvania State University Paper title: “Enhanced urban PM2.5 prediction: Applying quadtree division and time-series transformer with WRF-chem”



Student Paper Competition

Sponsored sessions in AAG 2025

The GISS Specialty Group was proud to sponsor 90 sessions at the 2025 AAG Annual Meeting in Detroit, representing the diverse and evolving landscape of GIScience. These sessions highlighted cutting-edge advancements in GeoAI, spatial data science, human dynamics, environmental health, remote sensing, and GIScience education. Collectively, they reflected the interdisciplinary nature of our field and demonstrated how geospatial technologies are being leveraged to address global challenges such as climate change, disaster resilience, public health, and urban sustainability.

Over the course of five days, GISS-sponsored sessions featured a dynamic mix of symposia, independent paper sessions, and panel discussions. Highlights included the GeoAI and Deep Learning Symposium, the Symposium of Human Dynamics Research, the Symposium on Spatial AI & Data Science for Sustainability, and the Symposium on Geospatial Approaches to Pressing Grand Challenges. We sincerely thank all the organizers, presenters, and attendees who helped make this year's meeting a success. Your contributions continue to drive innovation and collaboration in the field of GIScience.

Award Ceremony and Reception

GISS Award Ceremony and Reception were held right after the Waldo Tobler Distinguished Lectures. During the ceremony, winners of the Student Paper Competition were formally announced and recognized. The event also served as a lively social gathering, offering colleagues,



students, and friends of the GISS community a chance to connect, celebrate, and reflect on another productive year of research and collaboration. We were delighted by the strong turnout and the vibrant energy in the room, and we sincerely thank everyone who joined us in making the evening both memorable and meaningful.



Photos in the award ceremony

Looking Ahead to 2026 AAG

The 2026 AAG Annual Meeting will be held from **March 17–21, 2026**. As we look ahead, the GISS Specialty Group is committed to building on the momentum of this year's success and continuing to serve our vibrant community. If you have suggestions or would like to get involved, please don't hesitate to contact us.

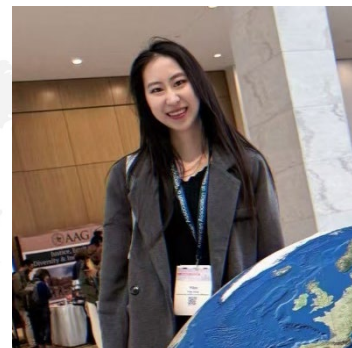




Spotlight on the Community

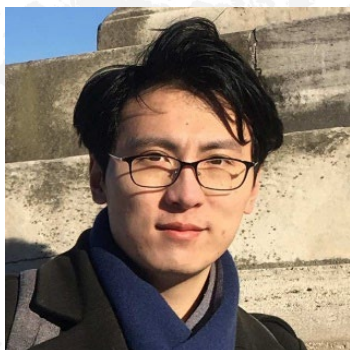
2025 Student Competition Winners

Yibo Zhao (1st Place in 2025 Student Paper Competition): I'm a third-year Ph.D. student in Cartography and GIS at the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences. I'm also currently a visiting Ph.D. student at the GeoDS Lab at the University of Wisconsin–Madison, supervised by Prof. Song Gao. My research focuses on modeling urban dynamics using billions of truck trajectory records, with the goal of supporting sustainable transportation and environmental planning.



Through my research, I discovered that mobility patterns vary significantly across different moving objects. Many existing models rely on built-in distributional assumptions, which can introduce systematic biases, particularly when analyzing truck movement. These challenges became a source of inspiration, and motivated me to develop a new method, which I presented at the GISS Student Paper Competition. By analyzing massive GPS datasets, I uncovered mobility patterns revealing regional economic structures and hinted at broader urban trends. These discoveries make me believe that research challenges often lead to meaningful breakthroughs, and I'm excited to continue exploring this topic moving forward.

To students starting out in GIScience, I'd say: don't fear challenges and difficulties. The moment we face a challenge is often the moment a new idea is born. That's the beauty of research, where challenges and surprises go hand in hand. I feel fortunate to be in a field I love. My immediate goal is to stay focused on my Ph.D. work, but my long-term dream is to keep exploring the world through geospatial thinking and make a lasting contribution across disciplines.



Zhangyu Wang (2nd Place in 2025 Student Paper Competition): I am a fifth-year Ph.D. student in the Department of Geography at UC Santa Barbara, advised by Professor Krzysztof Janowicz. My interest in GIScience was sparked during my undergraduate studies in architecture and urban planning, where I developed a deep fascination with the study of space. I realized that modern urban spaces, and, more broadly, geographical spaces, are too complex to be fully described using natural language alone. This realization led me to pursue a computational approach to better understand and represent spatial complexity, ultimately motivating me to continue my studies at

the Ph.D. level.

Currently, my research focuses on exploring the theoretical foundations of GeoAI methods. I am particularly interested in understanding which types of AI techniques are most effective for solving

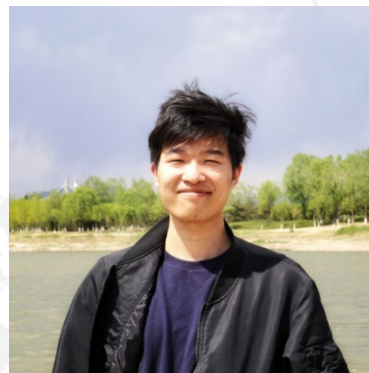


geographical problems, why certain methods succeed where others fall short, and what insights we can draw to design better GeoAI models in the future. This work excites me because it connects deep theoretical questions with practical innovations that have the potential to advance the field.

For students just beginning their journey in GIScience, I would advise maintaining a steady source of motivation. For me, it has always been the pursuit of computational modeling to better understand complex spaces. At the same time, it's important to stay open to changes along the way. Research paths often evolve in unexpected and rewarding directions, and flexibility is essential for both growth and discovery.

Zhongfu Ma (2nd Place in 2025 Student Paper Competition)

My name is Zhongfu Ma, and I'm a third-year Ph.D. student in the Department of Geography, Environment, and Society at the University of Minnesota Twin Cities, where I work under the guidance of Dr. Di Zhu.



I often joke that my GIScience story began at birth. I was born on the campus of the China University of Geosciences in Wuhan. But the real spark came later, when my family moved to Beijing. From 2000 to 2015, I witnessed the rapid growth and transformation of the city. "Urban villages" outside my home were demolished and rebuilt as modern communities. Office towers rose seemingly overnight from once-empty fields. By moving with my family, I didn't just witness these changes. I became part of them. These experiences fueled my fascination with the dynamics of urban systems and sparked my desire to study cities as vast, intricate organisms shaped by the interactions of millions of people.

My current project, "Gravity-Informed Deep Flow Inference for Spatial Evolution in Panel Data", brings me back to the very spark that ignited my passion for GIScience. In this study, we introduce a novel deep learning model, the Deep Spatial Evolution Network (DSEN), to infer spatial evolution, i.e., flows, underlying dynamic spatial distributions. What excites me most is that modeling spatial evolution with a panel gravity framework not only yields robust results even with limited samples, but also allows the model to generalize well across different events while maintaining high performance.

This project came with many challenges. The biggest lesson I've learned is to never stop trying. Maybe the next literature search will reveal the missing piece of theory, or the next tweak to a hyperparameter will unlock a leap in performance. Whatever happens, keep probing, keep reflecting, and keep your brain warm.



News in the GISS Community

The chair of the GISS Specialty Group, **Dr. Lei Zou**, was recently awarded **the 2025 Emerging Scholar Award** by the American Association of Geographers (AAG) Spatial Analysis and Modeling (SAM) Specialty Group. Dr. Zou has made significant contributions to spatial analysis and modeling, particularly in the areas of disaster resilience, environmental health, and geospatial big data. His work bridges theory and applications through the development of intelligent models, integration of diverse data sources, and a strong commitment to community engagement and education. With more than 60 peer-reviewed publications and leadership on over 20 funded projects—including major grants from NSF and NASEM—Dr. Zou exemplifies the innovative spirit and collaborative vision that this award celebrates. Congratulations to Dr. Zou on this well-deserved recognition!





The Leadership

Board of Directors (2024-2025)

The GISS Specialty Group is led by a Board of Directors (BOD), composed of scholars and professionals who help guide the group’s activities, organize events, support student initiatives, and promote GIScience within and beyond AAG. We welcome new voices and perspectives! If you're passionate about advancing GIScience and building community, consider joining the BOD in our next election cycle.



Chair	Lei Zou , Assistant Professor, Department of Geography, Texas A&M University. [lzou at tamu.edu]
Vice Chair	Gengchen Mai , Assistant Professor, Department of Geography and the Environment, University of Texas at Austin. [gengchen.mai at austin.utexas.edu]
Immediate Past Chair	Song Gao , Associate Professor, Department of Geography, University of Wisconsin, Madison. [song.gao at wisc.edu]
Academic Director	Yingjie Hu , Associate Professor, Department of Geography, University at Buffalo. [yhu42 at buffalo.edu]
Communications Director	Yi Qiang , Associate Professor, School of Geosciences, University of South Florida. [qiangy at usf.edu]
Commercial Director	Nan Ding , EZRouting. [nding at ezrouting.com]
Government Director	Samantha T. Arundel , U.S. Geological Survey. [sarundel at usgs.gov]
Student Representative	Binbin Lin , PhD Student, Department of Geography, Texas A&M University. [bb2020 at tamu.edu]

Also, we would like to thank the former BOD members Dr. Ran Wei, Dr. Yuhao Kang, and Han Wang for their invaluable time and contributions to the GISS-SG!



Get Involved with GISS

Becoming a Member

Become a member of the GISS Specialty Group and connect with a vibrant community of scholars, educators, and professionals dedicated to advancing GIS research, education, and practice.

Membership benefits

- Access to the GISS Specialty Group Forum on the AAG website
- Ability to post and receive announcements about job opportunities, seminars, and events in the field of GIScience
- Opportunities to exchange ideas and stay engaged with the GIScience community
- Eligibility to participate in GISS-sponsored awards such as the student paper competition, travel grants, and more.
- Eligibility to join the election for the Board of Directors
- Subscription to periodic GISS newsletters with updates on community news, research highlights, and upcoming activities

Annual Membership Dues

Regular member: \$12

Student member: \$2

How to join GISS

To join the GISS Specialty Group, log in to your AAG account at aag.org. The following are brief instructions on how to subscribe to the GISS group and how to post a message in the community. Please note: an active AAG membership is required to join GISS



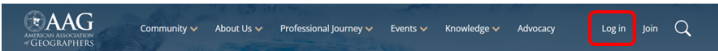
American Association of Geographers (AAG) Geographic Information Science and Systems Specialty Group



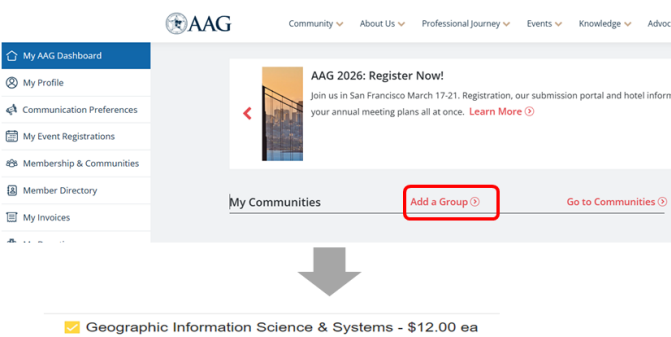
How to join the GISS specialty group

Step 1: Sign in or sign up your AAG account

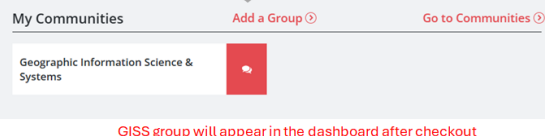
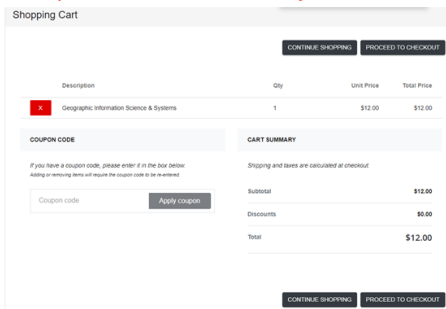
<https://www.aag.org/>



Step 2: Add the GISS group in your dashboard

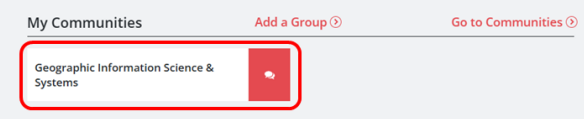


Step 3: Checkout with Payment

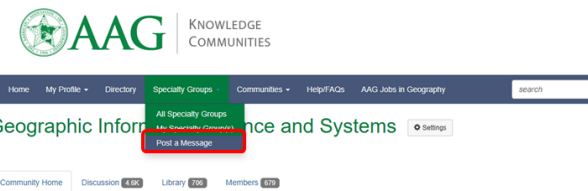


How to post a thread in the GISS community

Step 1: Click to enter the GISS community

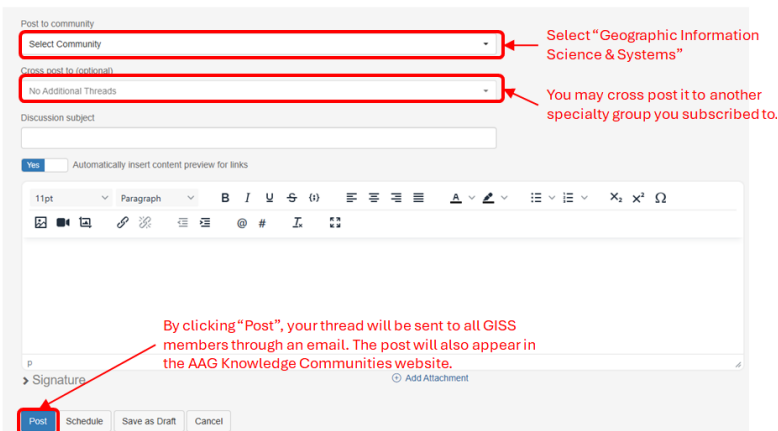


Step 2: Click "Post a Message"



Step 3: Create and publish the thread

Start New Thread





GISS Sponsorship in 2026 AAG

The GISS Specialty Group will continue to sponsor sessions organized by GISS members in future AAG annual meetings, including the 2026 meeting in San Francisco. We will feature all GISS-sponsored sessions on the GISS website, social media (X), and the AAG Community forum. To obtain the sponsorship from GISS, please email the title and abstract of the sessions to the communication director of GISS.

Join the BOD

Interested in shaping the future of GIScience? Consider joining the Board of Directors (BOD) of the GISS Specialty Group! Serving on the BOD is a valuable opportunity to contribute to the GIScience community, help organize events and initiatives, and support student and professional engagement. Nominations for the 2025–2026 cycle closed on Sept. 5, and voting will take place shortly thereafter. Please remember to vote for your preferred candidates. The elected directors will begin their terms on October 1, 2025.

The call for nominations for the next election cycle will open at the same time in 2026. We welcome both nominations and self-nominations from anyone interested in joining the GISS BOD.

Note: membership in the GISS Specialty Group is required to participate in the nomination and voting process.

Contribute to the Newsletters

We're planning to include more content from the GISS community in future editions of the newsletter. Upcoming issues will feature interviews with past GISS chairs, current and former Board members, as well as both renowned and emerging scholars in GIScience. We also look forward to highlighting innovative and impactful research in the field. If you have suggestions for topics or content you'd like to see included, please don't hesitate to reach out.

GIS Jobs

AAG Jobs: <https://jobs.aag.org/jobs/?keywords=GIS>