

Jiashu Hu

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Professional Summary

PhD student in Construction Management at Purdue with a technical geospatial foundation (photogrammetry, remote sensing, GIS) now actively collaborating with political scientists on interdisciplinary research bridging engineering methods and political inquiry.

- **Political science collaborations:** Contributing technical expertise to the Governance and Responsible AI Lab (GRAIL) at Purdue's Department of Political Science on political deepfake detection—developing computer vision pipelines, region-of-interest analysis, and automated social media data collection. Collaborating with scholars at the Chinese Academy of Social Sciences on comparative semiconductor industrial policy research examining organizational models for technology governance.
- **Technical background:** Training in surveying & mapping and geodesy (M.Sc., University of Stuttgart, 2019–2023); foundations in photogrammetry, optical & microwave remote sensing, GIS, UAV systems, and LiDAR; thesis research with Vexcel Imaging and the German Aerospace Center (DLR).
- **Cross-lingual & cross-cultural work:** Operate and write effectively in English, Chinese, and German; lived, studied, and worked across China, Europe, and the U.S., supporting nuanced comparative analysis of academic, industrial, and institutional contexts.

Research Interests

Applying open-source remote sensing to build transparent, auditable measures for international relations and security decision-making. Specific interests include: maritime presence and crisis behavior analysis using satellite imagery and ship-traffic data; trade resilience monitoring through port activity and infrastructure observation; drone proliferation effects on security dynamics.

Long-term goal: Revisiting classical theories of sea power and land power (Mahan, Mackinder) in light of contemporary infrastructure, production networks, and spatial data.

Work Experience

Research Collaborator

GRAIL Lab, Political Science, Purdue 2025.09 – Present

- Providing technical support for political deepfake research: computer vision pipelines, attention/saliency analysis, and automated social media data extraction via API.

Research Assistant, Teaching Assistant

Purdue University, West Lafayette, US 2023.08 – Present

- Photogrammetry- and LiDAR-based scanning processes for construction management.

Independent Researcher

Vexcel Imaging, Graz, Austria 2023.07 – 2023.09

- Estimated the efficiency gains of adaptive motion compensation for airborne photogrammetry image quality.

Research Assistant

University of Stuttgart, Stuttgart, Germany 2020.05 – 2021.10

- InSAR satellite data analysis for deformation detection; scripting for Sentinel data acquisition.

Publications

- 2026 (accepted). *Enabling Natural Language Queries for 3D Structural Data Through PointLLM-Based Steel Girder Corrosion Detection.*
Jiashu Hu, Jingyi Lai, Tianru Zhao, Kyubyang Kang (Corresponding Author).
Accepted for presentation at TRB 2026 Annual Meeting.
- Invited, in preparation. *Construction Site Material Visualization System Based on Language Embedded Radiance Fields.*
J. Hu, J. Xiao, R. Lingannagari, S. Vazhappilly, S. Muppaneni, K. Kang, C. Cory.
Invited for Special Issue, Journal of Computing in Civil Engineering (JCCM).
- 2025. *Enhancing Construction Site Digital Twins with Language Embedded Radiance Fields.*
J. Hu, J. Xiao, R. Lingannagari, S. Vazhappilly, S. Muppaneni, K. Kang, C. Cory.
- 2024. *Reconstructing and Visualizing Construction Progress Using Neural Radiance Fields.*
J. Xiao, J. Hu, S. Moon, K. Kang.
- 2024. *Large Language Model-based Reasoning for Hierarchical Structure of Scan-to-BIM Objects under IFC Standard.*
J. Xiao, J. Hu, H. Kang, T. Hong, K. Kang.

Education

Ph.D. in Construction Management

Purdue University, West Lafayette, US 2023.08 – current

M.Sc. in Geodesy (Geomatics Engineering)

University of Stuttgart, Stuttgart, Germany 2019.10 – 2023.07

B.S. in Surveying and Mapping Engineering; B.A. in Environmental Art Design

Nanjing Forestry University, Nanjing, China 2015.09 – 2020.06