Sihan Yu

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GIS Analyst | Enterprise GIS Data QA/QC | Linear Infrastructure / Network Metrics | ArcGIS Pro & Python

Education

University of Pennsylvania — Philadelphia, PA
M.S.E. Urban Spatial Analytics (MUSA) — GPA: 3.94/4.0 — *Aug 2025 – May 2026 (Exp.)*

University of Edinburgh — Edinburgh, UK
B.Sc. Geology & Physical Geography — First Class Honours (GPA eq.: 3.84/4.0) — *Sep 2021 – Jul 2025*

Experience

Research Assistant — Jun 2025 – Jul 2025
School of Geosciences, University of Edinburgh — *Edinburgh, UK*

- **Geospatial QA/QC + standardization:** corrected coordinate/area mismatches across **87** gauge–catchment records; validated projection consistency and produced cleaned, model-ready GIS inputs and QC logs (ArcGIS Pro, Python/GeoPandas).
- **Inventory + reporting:** compiled **40+ years** of discharge/bankfull records and benchmarked **472** stations against **GloFAS** (KGE/NSE) to flag bias; delivered tables/maps and documentation for stakeholder review.

Urban Planning & WebGIS Intern — Jun 2022 – Jul 2022
Yinzhou Institute of Surveying and Mapping — *Ningbo, China*

- **Enterprise GIS data maintenance:** edited and QA/QC'd **5,000+** municipal/cadastral features in a Smart City operations platform; standardized schemas/attributes and resolved geometry/topology issues to improve dataset integrity.
- **Field-to-GIS validation:** verified housing attributes via field checks and archival cross-references; produced classified map outputs and improved imagery interpretability using **ArcMap** (image fusion).
- **Data integration:** compiled GIS layers from maps/spreadsheets/internal databases; ensured coordinate system consistency and produced map layouts for planning/reporting.

Student Representative — Sep 2024 – May 2025
School of Geosciences, University of Edinburgh — *Edinburgh, UK*

- Coordinated a faculty-led **GIS workshop** (requirements, agenda, logistics), earning **80%+** peer support and supporting implementation.

Selected GIS & Engineering-Style Projects

Tree Planting Operation System (PHS) | *ArcGIS Online, PostGIS, JS Mapbox* — Jan 2026 – Present

- **Operational workflow + data governance:** built a web intake map/form for submissions and an admin review interface to update status/notes and maintain data quality (change tracking + QA checks).
- **Layer QA/QC + usability:** improved layer design, filters, and overlays to help users identify priority locations; packaged outputs for iterative stakeholder review.

Cadastral & Transportation Dataset Digitization (East Scania, Sweden) | *ArcGIS Pro* — Feb 2024

- **Data creation + editing:** digitized point/line/polygon infrastructure (roads, parcels, waterways) with consistent schema and attribute coding; managed formats and projections for a clean, standards-aligned dataset.
- **Infrastructure measurements:** computed network/area statistics and delivered map layouts with regional summaries (inventory-style reporting).

Flood–Transportation Exposure Mapping in Thailand | *Python, ArcGIS, OSMnx/NetworkX* — Nov – Dec 2025

- **Linear network overlay + metrics:** intersected flood extents with OSM road networks via spatial joins/overlay; summarized **road exposure** and network impacts into map-ready tables and layers.
- **Connectivity analysis:** measured disruption using **betweenness centrality** and delivered scenario comparison maps in an interactive web report (Quarto/GitHub Pages).

Flood Risk & Megaproject Impacts (Mandalay, Myanmar) | *HEC-RAS, ArcGIS Pro, Python* — Dec 2024 – May 2025

- **2D modeling + mapping:** simulated **5 return periods** with unsteady 2D HEC-RAS; produced inundation/velocity maps and scenario comparisons under infrastructure changes.
- **Exposure overlay:** delineated risk areas (**8.4–11.0%** urban land) and delivered standardized cartography for mitigation-oriented planning decisions.

Technical Skills

GIS: ArcGIS Pro, ArcMap, QGIS; editing & QA/QC, topology checks, spatial query, spatial joins/overlay, raster/vector analysis, map layouts
Web/Enterprise GIS: ArcGIS Online (Web Maps), Experience Builder; Postgres/PostGIS; publishing and stakeholder-ready deliverables
Data & QA/QC: ETL, schema/attribute standardization, geometry validation, coordinate systems & projections, metadata/documentation
Programming & SQL: Python (pandas, GeoPandas), R (sf/tidyverse), SQL (Postgres); automation, reproducible reporting
Tools: OSMnx/NetworkX, Git/GitHub, Jupyter, Quarto, Docker