

ZHAOXIN (JENNY) MA

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Portfolio: urban2orbit.studio | RPub: rpubs.com/jennyxinma

EDUCATION

Georgia Institute of Technology, Atlanta, GA

Aug. 2024 - Expected Dec. 2026

- Master of City & Regional Planning (Urban & Data Analytics), GPA 3.95
- M.S. Geographic Information Science & Technology, GPA 4.00

Binghamton University (SUNY), Binghamton, NY

Aug. 2023 - June 2024

- B.S. Geospatial Information Science, Summa Cum Laude, GPA 3.97

United States Military Academy, West Point, NY

June 2020 - Nov. 2022

- Prior undergraduate study in Geospatial Information Science; German minor

TECHNICAL SKILLS & SOFTWARE

GIS & Spatial: ArcGIS Pro, ArcGIS Online, ArcGIS Urban, Field Maps, Dashboards, StoryMaps, ModelBuilder, Network Analyst, Business Analyst, QGIS, GeoDa, ENVI; raster/vector analysis, suitability modeling, spatial statistics, network analysis, cartography, LiDAR and geodatabase workflows

Programming & Data: R/RStudio, Python/arcpy, SQL, Arcade, Jupyter, Anaconda, VS Code, Leaflet, APIs, Excel/pivot tables; data cleaning, QA/QC, automation, reproducible analysis

Analytics: Regression and count models, PCA, Moran's I/LISA, sentiment/NLP analysis, demographic/housing/workforce analysis, peer benchmarking, survey analysis, economic-development research

Digital Engineering & 3D: ArcGIS Urban, Rhino, Grasshopper, NVIDIA Omniverse/OpenUSD, Unreal Engine, SysML 2.0/OpenMBEE; exposure to ROS/ROS2 and Isaac Sim

Data & Research Platforms: Census/ACS, Census OnTheMap, Social Explorer, Lightcast, CoStar, Placer.ai, HUD/Zillow data, Qualtrics, JMP

Design & Communication: Adobe Illustrator/Creative Cloud, Canva, Microsoft Word/PowerPoint/Excel; technical reports, StoryMaps, posters, stakeholder presentations, data storytelling

PROFESSIONAL EXPERIENCE

Graduate Research Assistant - Center for Economic Development Research (CEDR), Georgia Tech

Aug. 2024 - Present

Enterprise Innovation Institute | Atlanta, GA

- Contribute to 30+ applied economic-development, housing, workforce, strategic-planning, and GIS projects for cities, counties, regional commissions, and statewide partners across Georgia.
- Design GIS workflows and client-ready spatial products in ArcGIS Pro/Online, including parcel databases, Field Maps surveys, dashboards, interactive web maps, zoning/land-use inventories, and large-format cartography.
- Analyze Census/ACS, OnTheMap, Social Explorer, Lightcast, CoStar, Placer.ai, housing, and market data; translate findings into technical reports, presentation decks, recommendations, and stakeholder materials.
- Develop R/Leaflet/API workflows, including a Census-data continuity workflow used when federal portals were unavailable; conduct data validation, QA/QC, and multi-source database integration.
- Support stakeholder interviews, surveys, community engagement, report writing, presentations, and project coordination; currently train newer graduate researchers as responsibilities transition before graduation.
- Selected work includes Clarkston DDA Strategic Plan, Chamblee Economic & Housing Study, Georgia AIM, Liberty County Economic Development Study, Thomaston Housing Needs Assessment, Hollowell Parkway planning analysis, and regional workforce research.

Economic Development & Geospatial Analyst Intern - CEDR, Georgia Tech

June 2025 - July 2025

- Completed an 8-week full-time appointment supporting GIS, demographic, workforce, land-use, and economic-development analysis; produced maps, summary tables, research, and client-facing report materials under project deadlines.

Geospatial Analyst / Research Assistant - GAIA Lab, Binghamton University

Oct. 2023 - May 2024

- Conducted land-use/land-cover and urban-change analysis using aerial imagery, LiDAR-derived elevation models, and environmental and socioeconomic datasets under Dr. Adam Mathews.
- Integrated terrain, hydrologic, environmental, and demographic data into GIS workflows; prepared maps, StoryMaps, technical documentation, and research outputs supporting lab work and publication.

SELECTED RESEARCH, ENGINEERING & PLANNING PROJECTS

Urban2Orbit - Lunar South Pole Site Selection & Infrastructure Planning

2026 - Present

- Developed an independent research direction extending GIS capstone work into lunar urban-systems design, treating the Lunar South Pole as a planning and infrastructure siting problem.
- Built a GIS multi-criteria suitability framework using NASA LOLA/LROC-derived terrain and illumination data; compared nine Artemis candidate sites using slope, illumination, PSR proximity, elevation/ridge conditions, and expandable terrain.
- Selected Malapert Massif as the proof-of-concept site and translated spatial analysis into a terrain-responsive master-planning framework with landing, habitation, solar, communications, logistics, and mobility zones; extended outputs into Rhino-based 3D design.
- Integrated urban-design theory and spatial planning concepts from Lynch, Jacobs, and Alexander; capstone materials include a report, StoryMap, poster, site-comparison maps, and ongoing research toward publication.

ECLIPSE - Ecosystem for Collaborative Lunar Infrastructure Planning and Systems Engineering

Aug. 2025 - 2026

- Workflow Integrator and GIS/urban-planning visualization contributor for a year-long Georgia Tech Systems of Systems Grand Challenge team working with external advisors/stakeholders from NASA, The Aerospace Corporation, NVIDIA, Studio 52, and the Open Solar System Foundation ecosystem.
- Co-developed a digital engineering ecosystem linking systems architecture/SysML, GIS-based site planning, discrete-event simulation, verification, CAD submission, and OpenUSD/NVIDIA Omniverse visualization.
- Built the spatial decision layer translating lunar terrain and environmental constraints into site-selection and infrastructure-placement outputs for downstream engineering and simulation workflows; supported interoperability and visualization integration.
- Project paper, "ECLIPSE: A Digital Engineering Ecosystem for Collaborative Lunar Base Architecting," accepted for AIAA SciTech 2027.

Bancho Digital Twin - 2026 Tokyo Smart City Studio

Spring 2026

- Selected for a six-credit Georgia Tech planning/architecture studio focused on Bancho, Chiyoda, Tokyo; collaborated with faculty, design teams, Japanese stakeholders, and University of Tokyo-related reviewers.
- Served as studio-wide GIS contributor and Bancho Active Spine team member; prepared zoning, building-use, elevation, land-use, circulation, and other spatial datasets for planning and architectural workflows.
- Independently built the studio digital twin in ArcGIS Urban during the final project phase, integrating custom GIS data, Rhino proposals, building profiles, solar/elevation information, performance metrics, and community-engagement content into an interactive 3D decision-support environment.
- Final work was presented at the Eco Urban Lab review and Kendeda end-of-year showcase; final studio report credits "Zhaoxin Jenny Ma - Digital Twin Development."

Resilient Airport Systems - Digital Twin for ATL

Fall 2025

- Interdisciplinary Smart Cities Workshop project examining operational resilience at Hartsfield-Jackson Atlanta International Airport using high-frequency flight data, agent-based modeling, disruption scenarios, and digital-twin decision support.
- Individual contributions included literature review on airport resilience/agent-based modeling, case-study and problem formulation, ATL flight-data collection and cleaning, findings synthesis, and interpretation of simulation outputs.
- Collaborated across planning and aerospace engineering to connect passenger-flow modeling and operational KPIs to planning and resilience insights.

Airport Proximity & Public Health in Georgia

2025

- Individual Public Health Analytics project integrating CDC PLACES, ACS, FAA, and TIGER/Line data to examine asthma and cardiovascular-health patterns near major Georgia airports.
- Applied ArcGIS Pro mapping, PCA, GeoDa Moran's I/LISA spatial statistics, and regression modeling; interpreted airport proximity alongside socioeconomic and rural-health disparities.

Park Sentiment & Nearby Commercial Activity - Urban Analytics

2026

- Three-person project recognized as one of the strongest in the course; combined Atlanta park boundaries, mobility-based POI visitation, Google Maps reviews, neighborhood controls, and seasonal observations.
- Used R-based negative binomial regression, model comparison, seasonal/industry-specific models, and NLP sentiment classification to test relationships between public perception of parks and nearby urban activity.

Electricity Generation & Carbon Emissions Across U.S. States - Climate Change Analytics

2026

- Used R with SEDS energy data to compare electricity-generation mixes and electricity-related CO2 emissions across Georgia, Florida, New York, Arizona, and the United States; produced comparative charts and spatial visualizations with tidyverse, sf, tigris, and tmap.

Highland Falls, NY Neighborhood Case Study - Community Dynamics & Engagement

2024-2025

- Transformed a standard neighborhood research assignment into a 22-slide illustrated walking-tour narrative combining stakeholder interviews, comprehensive-plan review, local history, institutions, informal practices, zoning/growth conflicts, flooding, and community identity.
- Project was subsequently shown to later classes as an example of creative neighborhood research and planning communication.

ULI Hines Student Competition

Spring 2025

- Participated in an interdisciplinary real-estate development and urban-design competition team; contributed planning and spatial-analysis support to the team proposal.

SELECTED APPLIED RESEARCH & CLIENT PROJECTS - CEDR

Clarkston DDA Strategic Plan

2026

- Designed the project windshield-survey methodology and ArcGIS Field Maps workflow; created/updated parcel-level zoning, land-use, business-type, building-condition, tenure, parking, sidewalk, tree, story, and POI datasets.
- Supported field verification, retail/outshopping analysis, demographic and business-survey analysis, stakeholder interview synthesis, community engagement, and final GIS data packaging for municipal reuse.

Chamblee Economic & Housing Study

2026

- Independently developed the community-profile analysis across demographic, housing, workforce, transportation, education, and quality-of-life indicators; performed peer benchmarking, source validation, visualization, and planning narrative development.

Georgia AIM

2024 - 2026

- Supported statewide AI-readiness, workforce, infrastructure, cybersecurity, education, and economic-development research across Georgia's regional commissions; created maps, regional profiles, training materials, surveys, and data-validation workflows.
- Built interactive R/Leaflet vacancy mapping tools and contributed to the CEDR Georgia AIM interactive web map, AI101 materials, workforce research, and statewide strategy/report development.

Liberty County Economic Development Study

2025 - 2026

- Led substantial demographic, GIS, peer-community, Lightcast industry, and report-development work; produced maps/charts, drafted analytical sections, and supported conclusions and recommendations.

Selected Additional CEDR Work

2024 - 2026

- Thomaston Housing Needs Assessment: stakeholder/community housing analysis, workforce/commuting analysis, housing affordability and market trends, best-practice research, charts, and report writing.
- Hollowell Parkway: previous-plan synthesis, zoning/land-use and redevelopment analysis, and stakeholder presentation support.
- Substance Use Disorder Recovery Ecosystem Analysis: compared treatment, recovery housing, transportation, peer support, insurance, and workforce-support ecosystems across Polk, Floyd, and Chattooga Counties.
- Supplier Database & Industrial Survey: built/cleaned a multi-source database of underrepresented firms, standardized NAICS/ownership/certification/contact information, deduplicated records, and supported supplier-relationship analysis.

PUBLICATIONS, REPORTS & RESEARCH OUTPUTS

- "ECLIPSE: A Digital Engineering Ecosystem for Collaborative Lunar Base Architecting." Accepted for AIAA SciTech 2027.
- Honors Thesis - Urban Heat Island Analysis in Albany, New York. Published undergraduate honors research, Binghamton University, 2024.
- Urban2Orbit: GIS-Based Lunar South Pole Site Selection and Infrastructure Planning. MS-GIST capstone report, poster, maps, and StoryMap, Georgia Tech, 2026.
- Bancho Digital Twin / 2026 Tokyo Smart City Studio Final Report. Digital twin development contributor; forthcoming Georgia Tech publication/repository release, 2026.
- RPubs portfolio includes interactive R/Leaflet mapping and urban-analytics projects: <https://rpubs.com/jennyxinma>

LEADERSHIP & PROFESSIONAL ENGAGEMENT

Student Planning Association (SPA), Georgia Tech - MS-GIST Representative

2025 - Present

- Represent MS-GIST students; organize World GIS Day programming; provide recurring GIS Buddy tutoring and technical support to students across Georgia Tech programs.
- Serve as a student ambassador/resource for prospective and incoming students and help connect planning and GIS communities within the College of Design.
- Professional affiliations include the Georgia Geospatial Association and Esri Young Professionals Network.

NASA RASC-AL / Nexus Lab - Team Lead & Cross-Department Organizer

2026 - Present

- Organize interdisciplinary student recruitment and team formation across City Planning and Aerospace Engineering; coordinate skills/role intake and help bridge planning, GIS, digital engineering, and aerospace expertise.

United States Military Academy - Cadet Experience

2020 - 2022

- Air Assault School graduate; Battalion-Level Soldier of the Quarter.
- Developed experience in structured field environments, OPOD-based planning, time-sensitive decision-making, accountability, teamwork, and geospatial coursework.

HONORS & RECOGNITION

- Outstanding Student Award, Georgia Tech School of City & Regional Planning, Spring 2026.
- AIAA SciTech 2027 paper acceptance for ECLIPSE digital engineering research.
- Summa Cum Laude, Binghamton University, 2024.
- GIS Course Day / World GIS Day recognition for geospatial communication and StoryMap work, Binghamton University.
- Air Assault School Graduate; Battalion-Level Soldier of the Quarter, United States Military Academy.
- Honor society involvement: Gamma Theta Upsilon and Tau Sigma.

SERVICE & COMMUNITY ENGAGEMENT

Georgia House Rabbit Society - Volunteer

Ongoing

- Support rabbit-care and shelter operations, including feeding, routine health/medical checks, boarding care, facility closing, and day-to-day animal welfare tasks at a rabbit-specific rescue organization.