

YANG YANG

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SKILLS

Programming Languages: Python, R, SAS, SQL, VBA

Platforms & Frameworks: Slurm, Google Colab, Jupyter, Langchain, VSCode, ArcGIS, QGIS, Tableau

Libraries: Pytorch, Scikit-Learn, OpenCV, Pandas, GeoPandas, XGBoost, SHAP, Matplotlib, ggplot2

Methods: linear/logistic regression, spatial autoregressive models, tree-based models, CNN (Resnet, Yolo, etc.), LLM

Planning and Design Related: Adobe Design Suites (Photoshop, Illustrator, Indesign), Synchro, TransCAD, HCM, Vissum, MS Office Suite, AutoCAD, Microstation, Sketchup, Lumion

Languages: English, Mandarin

EDUCATION

University of North Carolina at Chapel Hill

Chapel Hill, NC

PhD in City and Regional Planning

Aug 2019 - Aug 2025

Thesis: "*Explore Urban Regeneration Pattern, Drivers, and Social Impacts in the Southeastern United States Through AI-Powered Analysis*" (Advisor: Yan Song, PhD)

University of North Carolina at Chapel Hill

Chapel Hill, NC

Master of City and Regional Planning

Aug 2014 - May 2016

School of Architecture, Southeast University

Nanjing, China

Bachelor of Engineering in Urban Planning

Aug 2009 – Jun 2014

EXPERIENCE

Senior Global Supply Chain Operation Specialist

Morrisville, NC

Lenovo, Inc.

Nov 2025 – Present

- Design, train, and optimize deep learning models focusing on LLMs, vision models, or generative AI systems to optimize global supply chain network flows and logistics distribution using Python and Java.
- Build scalable training pipelines to analyze global supply chain datasets, including data preprocessing, distributed training, and model evaluation.
- Develop efficient model inference and deployment systems to improve real-time performance in production.
- Stay up-to-date with deep learning trends and research related to supply chain and freight optimization, applying model compression, fine-tuning, and distillation techniques.
- Collaborate across teams to implement AI solutions in real-world business scenarios, such as Q&A, content generation, and predictive analytics.

Volunteer Research Assistant

Chapel Hill, NC

University of North Carolina at Chapel Hill

Oct 2025 – Oct 2025

- Developing and applying machine learning methods to urban regeneration research
- Supporting data analysis and GIS work on projects in the lab
- Assisting with the preparation of manuscripts, conference presentations, and project documentation.
- Participating in research meetings and collaborating with other team members.

Graduate Research Assistant

Chapel Hill, NC

University of North Carolina at Chapel Hill

Aug 2009 – May 2025

AI and Data Related:

- Created an open-source *Python*-based computer vision toolkit (UrbanTrace) to detect urban changes at the building level using high-resolution aerial imagery, incorporating deep learning models (*YOLO*, *Siamese Networks*), and integrated the tool into a *QGIS* plugin with *PyQt*.
- Processed and analyzed large-scale geospatial datasets (6.5M buildings across 35,000+ square miles) using *Python*, *PyTorch*, *OpenCV*, and GIS frameworks.
- Use *Large Language Models* via *LangChain*—including *GPT-4*, *Claude 3*, *Qwen2*, and *LLaMA 3*—to conduct sentiment analysis on 10,000+ Twitter/X posts, evaluating public perception of New York City's congestion pricing plan.
- **[Causal Inference]** Use logistic regression, spatial econometric analysis, and an explainable machine learning model (*XGBoost*+*SHAP*) to examine urban development trends and demographic shifts with

various Python packages

- **[Supervision]** Provided data analysis (*Python* and *R*), machine learning, and GIS support to lab researchers and supervised undergraduate and master's students.

Transportation Planner

HDR, Inc.

New York, NY
Aug 2016 - Jun 2019

AI and Data Related:

- Developed a *Python* + *VBA* pipeline to warehouse, analyze, and visualize transportation data from various sources (*MySQL*, *CSV*, *OData*) across the NY/NJ region
- Designed and developed a Windows tablet survey application using *Python* and *PyQt*, enabling surveyors to collect 5000+ questionnaires with automated daily uploads to a central *MySQL* server.
- Built interactive live data dashboards in *Tableau*, integrating *MySQL* databases to visualize transportation analysis results.
- Automated data analysis and visualization by developing *VBA* macros in *Excel* and *Adobe Illustrator*.
- Supervised 10+ third-party traffic data collectors in the field and ensured data quality

Planning and Design Related:

- Develop traffic models to assess the environmental impacts of various types of developments.
- Supervised 10+ third-party traffic data collectors in the field for data collection.

Real Estate Analyst

Traditional Neighborhood Development Partners

Durham, NC
Jun 2015 - Apr 2016

- Developed financial analysis pro forma in *Excel*, and developed a tool to automatically measure development metrics from design plans in *Python*.
- Created conceptual architecture designs and comprehensive urban designs using *AutoCAD*, *Sketchup*, and *Adobe Suites*.

PUBLICATIONS

Yang, Y., Ma, X., Chen, Z., Song, Y., (2025, Submitted to *Scientific Reports*) Identifying Building-Level Urban Changes with Computer Vision

Yang, Y. (2025). "Multi-Class Classification of Urban Regeneration Using a Siamese Network: An Analysis with Real-World Data from Portland, Oregon". Oral presentation at AAAI 2025 Workshop (AI for Urban Track)

Ma, X., Song, Y., Lyu, F., **Yang, Y.**, Wang, Y., Li, X., & Zhong, S. (2025). Revitalizing Cities: The 5R Framework Approach to Urban Retrofitting and Big Data Insights. *Growth and Change*, 56(1), e70018. <https://doi.org/10.1111/grow.70018>

Yang, Y., Song, Y., Thomas, A., Zhou, J., Palm, M. (2024, Under 2nd Round Review of *Journal Of Urban Technology*). The voices behind congestion pricing: Unveiling the social backgrounds of supporters and opponents through a large language model.

Yang, Y. & Song, Y (2024). "Assessing New Neighborhood Diversity in Charlotte via Computer Vision" Accepted for oral presentation at the Associate of Collegiate Schools of Planning Annual Conference 2024, Seattle, WA

Yang, Y. & Song, Y (2023). "Analyzing the socioeconomic background of New York congestion pricing opinion makers on social media through LLM" Accepted for oral presentation at the Associate of Collegiate Schools of Planning Annual Conference 2023, Chicago, IL

Yang, Y. & Chang, J. (2016). Study on the safety of outdoor activity space for early school-age children in Nanjing - Exploring strategies for optimizing residential neighborhoods and pre-school waiting spaces. Chinese Society of Urban Planning. (eds.) 60 years of planning: achievements and challenges - Proceedings of the 2016 China Urban Planning Annual Conference (Urban Design and Detailed Planning) (pp. 1599-1613). China Construction Industry Press.

AWARDS AND FELLOWSHIPS

Graduate Student Transportation Grant (UNC-Chapel Hill)

Jul 2024

Carolina Data Challenge 2022 First Place

Sep 2022

Social Science Track: "Flood? Let's Help! San Francisco Flood Health Vulnerability Analysis"

Transportation Leadership Fellows (UNC-Chapel Hill)

Jan 2020

Awarded in the China National Undergraduate School's Social Study Competition

Sep 2011

Public safety research in chemical industrial districts – Maigaoqiao, Nanjing"