Yang Yang

PhD Candidate in Systems Engineering
Research Assistant in Environmental Systems Lab
Ignite Fellow for New Ventures
Cornell University

Email: yy848@cornell.edu
Tel: +1 (607) 262 4094
Google Scholar
Cornell Profile Page

ABOUT

Yang Yang is a designer and engineer specializing in performance simulation, particularly at the urban scale. She develops innovative methods and tools for simulating human movement and experiences within the built environment. These simulation models serve to advance sustainability and equity in urban design. Yang is experienced in urban research, computational design, and software development. She has also applied data-driven and simulation-based technologies in her teaching of design studios and research seminars.

EDUCATION

2020-24 (Expected)	**PhD in Systems Engineering.** Cornell University. Concentration 1: City and Regional Planning Concentration 2: Transportation Systems Engineering	Ithaca, NY, US
2018-19	**Master of Science.** Cornell University. Concentration: Architecture and Ecology.	Ithaca, NY, US
2014-17	**Master of Architecture.** Tongji University. Concentration: Architectural History and Theory.	Shanghai, CHN
2010-14	**Bachelor of Engineering.** Tongji University. Concentration: Architectural Design.	Shanghai, CHN

EXPERIENCE

2024	**Ignite Fellow.** Cornell University Funded by Cornell Center for Technology Licensing (CTL) to develop entrepreneurship and commercialize research outcomes	Ithaca, NY, US
2018-23	**Graduate Research Assistant.** Cornell University Worked in the Environmental Systems Lab on the Urbano.io project	Ithaca, NY, US
2019, 23	**Teaching Assistant.** Cornell University Supported 2 courses in the College of Civil and Environmental Engineering (CEE) and Architecture, Art, and Planning (AAP)	Ithaca, NY, US
2022	**Adjunct Professor (Part-Time).** Thomas Jefferson University Instructed 2 courses in the Master of Urban Design Program at College of Architecture & the Built Environment (CABE)	Phila., PA, US
2019	**Teaching Associate.** Cornell University Coordinated the summer semester for the M.S.AAD program at AAP	Ithaca, NY, US

2014-16 **Junior Architect.** Tongji Architectural Design Co. Shanghai, CHN

Participated in 1 urban design project and 5 architectural projects

PUBLICATIONS

Journal Articles

Under Review **Yang, Y.**, Dogan, T., "Urbano2: A Data-Driven Agent-Based Model for Agile and Adaptable Urban Mobility Simulation." (Under Review) Computers, Environment and Urban Systems.

2023 **Yang, Y.**, Samaranayake, S., Dogan, T., "A Clustering-Based Approach to Quantifying Socio-Demographic Impacts on Urban Mobility Patterns." Environment and Planning B: Urban Analytics and City Science. https://doi.org/10.1177/23998083231159909

2023 **Yang, Y.**, Samaranayake, S., Dogan, T., "Assessing Impacts of the Built Environment on Mobility: A Joint Choice Model of Travel Mode and Duration." Environment and Planning B: Urban Analytics and City Science. https://doi.org/10.1177/23998083231154263

2021 **Yang, Y.**, Li, Y., Kral, K., Hupert, N., Dogan, T., "Urban Design Attributes and Resilience: COVID-19 Evidence from New York City." Buildings and Cities. https://doi.org/10.5334/bc.130

2020 Dogan, T., **Yang, Y.**, Samaranayake, S., Saraf, N., "Urbano: A Tool to Promote Active Mobility Modeling and Amenity Analysis in Urban Design." Technology|Architecture + Design. https://doi.org/10.1080/24751448.2020.1705716

Conference Proceedings (Peer-Reviewed)

2023 Du, P., Mavinkere, N., **Yang, Y.**, "Generative Urban Design: A Workflow Integrating Real-Word Mobility, Zoning, and Multi-Objective Simulation." in 2023 ARCC International Conference, Dallas.

2022 **Yang, Y.**, Wang, D., Dogan, T., "How the Urban Microclimate and Outdoor Thermal Comfort Can Affect Intra-City Mobility Patterns: Evidence From New York City." in 2022 Annual Modeling and Simulation Conference (ANNSIM), San Diego. https://doi.org/10.23919/ANNSIM55834.2022.9859328

2020 **Yang, Y.**, Samaranayake, S., Dogan, T., "An Adaptive Workflow to Generate Street Network and Amenity Allocation for Walkable Neighborhood Design." in 2020 Symposium on Simulation for Architecture and Urban Design (SimAUD), online. https://doi.org/10.7298/bmn8-0y37

2019 **Yang, Y.**, Samaranayake, S., Dogan, T., "Using Open Data to Derive Local Amenity Demand Patterns for Walkability Simulations and Amenity Utilization Analysis." in 2019 Joint Conference of eCAADe and SIGraDi, Porto. https://doi.org/10.5151/proceedings-ecaadesigradi2019_627

Dissertation & Theses

2024 **PhD in Systems Engineering.** "A Data-Driven Agent-Based Mobility Simulation Model and Its Integration into Built Environment Design and Planning".

2019 **Master of Science.** "Mobility-Driven Urban Design".

2017 **Master of Architecture.** "Historical Architectural Activities in Shanghai During World War II 1937-1945: Design, Construction, and Policymaking".

GRANTS & FUNDS

Submitted 2023 Oct — **NYSERDA PON 4393 Future Grid Challenge Round 4.** NYSERDA
"Urban Simulation to Solve Future Grid Challenges."
PI: Timur Dogan, Co-PIs: **Yang Yang**, Patrick Kastner

2023 MAY — **Ignite Fellow for New Ventures. $120K per year.** Cornell CTL
"Urbano.io - The Only Mobility Simulation Platform for Urban Design."
Fellow Recipient: **Yang Yang**

2022 SEP - 2023 SEP — **Ignite Innovation Acceleration. $50K.** Cornell CTL
"Urbano.io - The Only Mobility Simulation Platform for Urban Design."
PI: Timur Dogan, Project Team Members: **Yang Yang**, Patrick Kastner

2022 JUL – 2023 JUN — **Smart & Healthy Cities Seed Grant. $10K.** Jefferson Institute for Smart & Healthy Cities
"Create a Smart Mobility Platform for Analyzing and Visualizing the Effects of Urban Mobility on Population Health in the Center City of Philadelphia."
PI: Peng Du, Co-PIs: **Yang Yang**, Mitchell A. Kaminski

2020 Aug – 2022 JUL — **Small Grants Program. $8K.** Cornell Atkinson Center for Sustainability
"Energy and Mobility Aware Urban Design: A Mobility Simulator Assisting Urban Design Decision Making for Mitigating Energy Consumption and Transportation Emissions."
PI: **Yang Yang**

TEACHING

University Courses

2023 SP — **TA** for CEE 5665 Modeling and Optimization for Smart Infrastructure Systems **(Lecture)**
Cornell CEE (Instructor: Samitha Samaranayake)

2022 FA — **Instructor** for MUD 600 Modeling Urban Environmental Performance **(Seminar)**
Thomas Jefferson CABE (Co-Instructor: Peng Du)

2022 FA — **Instructor** for MUD 603 Performance-Driven Urban Design: Integrated Multi-Objective Optimization and Augmented Reality **(Design Studio)**
Thomas Jefferson CABE (Co-Instructor: Peng Du)

2019 FA — **TA** for ARCH 5611 Environmental Systems I: Site and Sustainability **(Lecture)**
Cornell AAP (Instructor: Timur Dogan)

2019 SUM — **TA** for ARCH 6110 Computational Design and Representation **(Seminar)**
Cornell AAP (Instructor: Fleet Hower)

2019 SUM — **TA** for ARCH 7111 Design A **(Design Studio)**
Cornell AAP (Instructors: Caroline O'Donnell, Laia Mogas, Jorge Duro, Biayna Bogosian)

Guest Lectures (GL), Workshops (WK) & Webinars (WB)

2023 WK — "Urbano.io V2 Beta Workshop". NYCDOT

2023 GL "Mobility Simulation for Urban Design". School of Architecture, University of Technology Sydney

2023 GL "Modeling and Analyzing Urban Mobility System". Thomas Jefferson CABE

2021 GL "Modeling and Analyzing Urban Mobility System". Thomas Jefferson CABE

2021 WK "Generate and Analyze Urban Mobility Solutions". Thomas Jefferson CABE

2020 WK "Urbano: A Tool to Promote Mobility Aware Urban Design". Symposium on Simulation for Architecture and Urban Design

2019 WB "Urbano: Mobility Modelling and Simulation in Grasshopper3D". Performance Network

2019 WK "Urbano: Mobility Modelling and Simulation in Grasshopper3D". Cornell AAP

AWARDS

2020 M.S.AAD Award for Outstanding Performance in Architecture (Cornel University)

2019 The Mary Miller Lyons Graduate Fellowship in Architecture (Cornell University)

2019 NY Upstate Chapter of the American Planning Association Award for Student Project

2018 The Honorable Mentions. Natian Cup International Design Competition

2017 First Prize. Young Architect Design Competition for Suqian City

2017 Shanghai Outstanding Graduates Award

2016 Third Prize. International Urban Design Competition for Shanghai Railway Station

2015 First Class China National Scholarship for Graduate Student

2014 Academy Award of the Department (Tongji University)

2014 First Class Saint-Gobain Scholarship (Tongji University)

2013 Second Class Jianlang Scholarship (Tongji University)

2013 Second Prize. East Asia Architecture and Urban Planning Competition

SERVICE

Since 2023 Reviewer for the journal Environment and Planning B: Urban Analytics and City Science

Since 2023 Reviewer for the journal Architectural Intelligence

Since 2020 Reviewer for Cornell Atkinson Center Small Grants Program

SOFTWARE & PRODUCTS

2023 Urbano.io (V2). A data-driven agent-based mobility simulation engine in Rhino & Grasshopper and ArcGIS. (Pre-release)

2023 Urban Digital Twin APIs. A data platform showcasing city-level pre-simulated data for energy and transportation systems. https://app.urbano.io

2022 Earthworms. A Python scripting environment for Rhino with enhanced interactivity and flexibility. http://www.food4rhino.com/app/earthworms

2019 Urbano.io (V1). Mobility modeling and simulation for parametric design in Rhino & Grasshopper. http://www.urbano.io

PATENT

2023 DEC "Data-Driven Simulation and Analysis Framework for Multi-Modal Urban Mobility Systems." US Patent filed at Cornell CTL. Application No. 63433527

MEDIA COVERAGE

2024 JAN "Aspiring Women Inventors Still Stalled by University Patriarchy" - Bloomberg Law

2023 DEC "Cornell Systems PhD Highlight: Yang Yang" – Cornell Systems Engineering News

2019 NOV "New Free Software Helps Create Walkable Cities of The Future" - Forbes

2019 NOV "Software Helps Planners Design Walkable Cities" - Cornell Chronicle

SKILLS

General Purpose Programming: Python, C#

Data / GIS: ArcGIS, QGIS, MATLAB, R, SQL, Stata, SPSS

Design / CAD: Rhino & Grasshopper, Adobe Series, AutoCAD, Sketchup, Revit

Language: Chinese (Native), English

Last Updated: January 2024