MATT FRANCHI

Cornell University
Cornell Tech (NYC)

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EDUCATION

Ph.D.	Computer Science, Cornell University	2022–2027
M.S.	Computer Science, Cornell University	2022–2024
B.S.H.	Computer Science, Clemson University	2019–2021

RESEARCH AREA

I am developing a novel method for the characterization of cities, called **autoglancing**. Autoglancing is situated at the intersection of urban sensing, machine learning, and artificial intelligence, and draws from the urban science literature. Autonomous vehicles and dashboard-mounted cameras are creating a new, enormously-powerful data stream of *dense* street imagery (DSI) for the study of cities, at macro- and micro-scale. Here, dense means many images both across the city and throughout the day. Artificial intelligence and machine learning methods make insights in this data stream extractable. My PhD work demonstrates use cases of autoglancing with DSI, including the sousveillance of police vehicles, identifying longitudinal distributions of sidewalk scaffolding, fingerprinting urban traffic, and predicting urban flash flooding. I also research the ethical use of dense street imagery and appropriate information flows. I am now at the stage of dissertation research, and seek to more formally situate autoglancing as a useful and extensible tool for stakeholders, including researchers, governments, urban tech companies.

SKILLS & KNOWLEDGE

Cities, the history of the city, public transportation, micromobility, on-edge computing.

Urban & geospatial data science, Python, efficient analysis of big data, computational social science, high-performance computing, urban sensing, mapping & geospatial visualization, computer vision, applying artificial intelligence models, statistical machine learning, Bayesian modeling.

Piano, composition, music production, AI-assisted web design, electronic music, fashion

PUBLICATIONS

Conference Proceedings

2025.d **Matt Franchi**, Nikhil Garg, Wendy Ju, and Emma Pierson. "Bayesian Modeling of Zero-Shot Classifications for Urban Flood Detection". Under Review. 2025 ACM Conference on Knowledge Discovery and Data Mining (KDD).

2025.c **Matt Franchi**, Hauke Sandhaus, Madiha Zahrah Choksi, Severin Engelmann, Wendy Ju, and Helen Nissenbaum. "Privacy in Dense Street Imagery". Under Review. 2025 ACM Conference on Fairness, Accountability, and Transparency (FAccT). Association for Computing Machinery, New York, NY, USA.

2025.b Dorin Shapira, **Matt Franchi**, and Wendy Ju. "Fingerprinting New York City's Scaffolding Problem with Longitudinal Dashcam Data". 19th International Conference on Computational Urban Planning and Urban Management (CUPUM). University College London, London, England.

2025.a **Matt Franchi**, Maria-Teresa Parreira, Frank Bu, and Wendy Ju. "The Robotability Score: Enabling Harmonious Robot Navigation on Urban Streets". In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25). Association for Computing Machinery, New York, NY, USA.
robotability.cornell.edu

2024.a **Matt Franchi**, Debargha Dey, and Wendy Ju. "Towards Instrumented Fingerprinting of Urban Traffic: A Novel Methodology using Distributed Mobile Point-of-View Cameras". In Proceedings of the 16th International ACM Conference on Automotive User Interfaces (AutomotiveUI). Association for Computing Machinery, New York, NY, USA.
Best Paper Honorable Mention

2023.a **Matt Franchi**, J.D. Zamfirescu-Pereira, Wendy Ju, and Emma Pierson. 2023. "Detecting disparities in police deployments using dashcam data." In Proceedings of the 2023 ACM Conference on Fairness, Accountability, and Transparency (FAccT). Association for Computing Machinery, New York, NY, USA, 534-–544.

2022.b **Matt Franchi**, Rebecca Kahn, Mashrur Chowdhury, Sakib Khan, Ken Kennedy, Linh Ngo, Amy Apon. 2022. "Webots.HPC: A Parallel Simulation Pipeline for Autonomous Vehicles." In Practice and Experience in Advanced Research Computing 2022: Revolutionary: Computing, Connections, You (PEARC). Association for Computing Machinery, New York, NY, USA, Article 31, 1–4.

2022.a **Matt Franchi**, Rebecca Kahn, Linh B Ngo, Sakib Khan, Mashrur Chowdhury, Ken Kennedy, Amy Apon. "A Parallel Autonomous Vehicle Simulation Pipeline on High-Performance Computing." Compendium of the Transportation Research Board 101st Annual Meeting. Washington, DC: Transportation Research Board.

Datasets

2024.a **Matt Franchi**, J.D. Zamfirescu-Pereira, Wendy Ju, and Emma Pierson. 2024. "Replication Data for: Detecting disparities in police deployments using dashcam data (FAccT'23)", Harvard Dataverse, V1.
A 10% random and anonymized sample (2.4 million images) of a dashcam image dataset spanning New York City limits during 2020.

Reports and Other Publications

2024.a Matt Franchi. "Estimating the Perceived Claustrophobia of New York City's Streets." https://mattwfranchi.github.io

PRESS

2024.d "Think N.Y.C.'s Roads Are Crowded? Good Luck on the Sidewalks." The New York Times. https://www.nytimes.com

2024.c "Most claustrophobic areas in NYC based on sidewalks: Study". Fox 5 NY. https://fox5ny.com

2024.b "Study looks at 'claustrophobic' city sidewalks". NY1 News. https://ny1.com

2024.a "New York City is covered in illegal scaffolding". The Economist. https://economist.com

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2023.b "The NYPD doesn't report where it deploys police. So scientists used AI, dashcams to find out.". The Gothamist. https://gothamist.com

2023.a "Dashcam images reveal where police are deployed". The Cornell Chronicle. https://news.cornell.edu

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2021.a "To Gen Zers Working From Home, the Office Is a Remote Concept". The Wall Street Journal. https://wsj.com

INVITED TALKS

2024.d "Detecting urban floods from dashcam data with vision language models". 2024 Urban Tech Summit. New York, New York.

2024.c "EAAMO Bridges: An introduction to EAAMO's semester-long working groups". 2024 ACM conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO).

2024.b "Novel Approaches to Studying the Law Enforcement Investigatory Process". 2024 Association for Psychological Science (APS) Annual Convention.

2024.a NYC Transportation Data Connect Symposium. NYC Mayor's Office, The Microsoft Garage. https://urban.tech.cornell.edu/hownycmoves/.

GRANTS AND AWARDS

2024 Digital Life Initiative (DLI) Doctoral Fellowship

2024 Finalist, Cornell Tech Urban Tech Hub Pilot Policy Studio

2022 Cornell Mary E. and Anna K. Cunningham Fellowship

2022 Cornell Dean's Excellence Fellowship

2021 Clemson University DuPont Best Undergraduate Award

2021 Clemson University CECAS Summer Research Opportunity Grant

2020 Tutor of the Month, Clemson Academic Success Center

2019 President's List - All 4 Undergraduate Semesters

LEADERSHIP AND SERVICE

Service to the university

Cornell University

2025 Reviewer, PhD Admissions Committee

2024 Organizer, Cornell Urban Data Science Reading Group

2023 Vice President, Cornell Computer Science Graduation Organization (CSGO)

2023 CS Representative, Cornell Graduate Student Assembly (GPSA)

2022 Pen-pal, Cornell Write-A-Researcher

Clemson University

2021 Board Representative, Clemson University Student Government

2021 School of Computing Representative, CECAS Student Advisory Board

2020 Board Member, Information Technology Student Advisory Board

2019 Secretary, Clemson Piano Club

Other academic service

2024- Organizer, EEAMO urban data science working group

Peer Review

2025 Program committee member, ACM Conference on Fairness, Accountability, and Transparency (FAccT)

2024 Reviewer, ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)

2024 Program committee member, ACM Conference on Fairness, Accountability, and Transparency (FAccT)

2023 Program committee member, ACM Conference on Fairness, Accountability, and Transparency (FAccT)

MEMBERSHIPS

Equity and Access in Algorithms, Mechanisms, and Optimization (EEAMO)

Association for Computing Machinery

Queer in AI

Digital Life Initiative

Cornell Tech Urban Tech Hub

Omicron Delta Kappa

Upsilon Pi Epsilon Computing Honors Society

ASSISTANTSHIPS

Cornell University

2025.b Teaching Assistant, Urban Design Strategies with Dr. Ariel Noyman

2025.a Teaching Assistant, Smart Cities with Dr. Anthony Townsend

2024.c Teaching Assistant, Urban Systems with Prof. Michael Samuelian

2024.b Teaching Assistant, Introduction to Computer Vision with Dr. Noah Snavely

2024.a Graduate Research Assistant, with Dr. Emma Pierson

2023.b Teaching Assistant, Applied Machine Learning with Dr. Volodymyr Kuleshov

2023.a Teaching Assistant, Building Startup Systems with Prof. Danny Perez

2022.a Research Assistant, with Dr. Wendy Ju and Dr. Emma Pierson

Clemson University

2021.a Research Assistant, with Dr. Amy Apon and BMW IT Research Center (REU)

2020.a Teaching Assistant, Computer Science II

2019.a Computer Science Tutor, Academic Success Center

PROFESSIONAL EMPLOYMENT

2024-25 Research Fellow, Hayden AI, San Francisco, California

2023 Chief Engineer, Generative AI & Fashion, ARI (stealth startup), New York City, New York

2023 Fashion Model, HOMME Management, New York City, New York

2022 Computer Science, Math, Physics Tutor, Capabilities, Charleston, South Carolina

2021-22 Software Engineer, High Side Technology, Charleston, South Carolina

2020-21 Computer Scientist Intern, High Side Technology, Charleston, South Carolina

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