Cornell Tech

STREETSCAPES | ROOSEVELT ISLAND

Doing Time on the River

Give this article   10

sThe penitentiary on Blackwell's Island, now Roosevelt Island, in the 1910s. Built in 1832, it was demolished in the 1930s. New York City Municipal Archives

By Christopher Gray

Feb. 9, 2012

PLANS are moving ahead to replace the 1939 Goldwater Hospital on Roosevelt Island with a $2 billion graduate school in applied sciences. This will be a new chapter in the history of the island, which for 100 years was a center of refuge and care, with hospitals and asylums.

5 fast facts

- Mayor Bloomberg launched a global competition for NYC campus in 2011
- Today the school has 8 master's and 4 PhD programs with 500+ grad students
- More than $1B in philanthropic support has been raised for campus and public programs
- Entrepreneurship programs have created 100+ startups valued at $550mm
- Public programs have doubled the number of CUNY women in CS, engaged 10K+ K-12 students, 250 teachers

Cornell Tech's $750mm campus on Roosevelt Island is NYC's newest center for innovation

The Bloomberg Center is one of NYC's only buildings designed to be net-zero

The campus "Tech Walk" brings together the Cornell Tech and local communities

CORNELL TECH

CORNELL TECH
HOME OF THE JACOBS TECHNION-CORNELL INSTITUTE

900+
CURRENT FACULTY, RESEARCHERS, STUDENTS & STAFF

2022

$1Bn
MONEY RAISED TO DATE

8000+
K-12 + CUNY STUDENTS IMPACTED

SINCE 2017

100
START-UPS CREATED

EXPANDING NYC'S TECH SECTOR

ACADEMIC

A

524
Full Time ('22)
Students
Alumni (inc. 60 PhDs)
1500+

40
Full Time ('22)
Faculty
Visiting + Adjunct ('22)
60+

24
Postdocs ('22)
Postgraduate
PhDs ('22)
105

13
Research Groups

$105M
Since 2017
External Research Funds

? DID YOU KNOW?

One of Cornell Tech's nearly **40 award-winning faculty** is a **MacArthur Genius Fellow.**

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START-UPS CREATED

EXPANDING NYC'S TECH SECTOR

ECONOMIC

B

? DID YOU KNOW?

1100
Direct Jobs Created

$31M
2022
Philanthropy
Since 2011
$977M

$55M
Since 2017
Cornell Tech Investment in Startups

$763M
Campus Construction

$65M
Annual Operating Costs

Cornell Tech's Bloomberg Center is designed to be **net-zero**, and was among the **first buildings** in New York City to integrate this goal.

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SINCE 2017

100 START-UPS CREATED

EXPANDING NYC'S TECH SECTOR

INDUSTRY

C

100
Companies Created
Startups
410
Employed in NYC

$250M
Startups Funding Raised

600M+
Startups Valuation
As of 2022

95+
2022
Organizations Participating in Studio
400+
Since 2017

32
Granted
Patents
Applications
69

DID YOU KNOW?

Did you know Nanit, founded by **Jacobs Institute Runway Postdoc** Assaf Glazer, was named one of TIME Magazine's 2018 **"Best Inventions."**

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K-12 + CUNY STUDENTS IMPACTED

100
START-UPS CREATED

SINCE 2017

EXPANDING NYC'S TECH SECTOR

PUBLIC

D

3000+
Women Engaged
Break Through Tech
'Springterns' placed ('22)
200+

5000+
Students Instructed
K-12 (CS)*
Teachers Engaged
250+

2022
31,000+
Campus Visitors
112,000+
Since 2017

148
2022
Public Events
Since 2017
320

50+
Since 2017
Roosevelt Island Community Events

? DID YOU KNOW?

Since the launch of Cornell Tech's **Break Through Tech** initiative, there has been a **124% increase** in the number of **CUNY women graduating** with bachelors degrees in **Computer Science** (CS).*

New York City's Unique Tech Position

- **Attracts Top Talent**
- **Global Financial Center**
- **Celebrates Diversity and Inclusion**
- **Tradition of Social Impact**
- **Cultural Influence**

"San Francisco is over-indexed on tech, New York City has [other sectors such as] government, media and culture, which has balanced it. It's made New York a more attractive city where venture capitalists and young people want to be."

Upal Basu, NGP Capital

Home > Technology

April 28, 2023 01:53 PM

New York is closer than ever to beating the Bay Area on tech

CARA EISENPRESS

EMAIL   SHARE   TWEET   SHARE

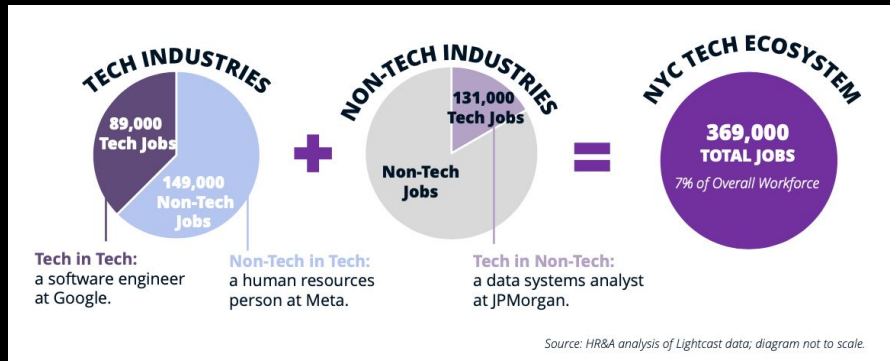New York's tech industry is nipping at the heels of the long-dominant Bay Area.

Bloomberg

The tech ecosystem in the city has for years been second to the Bay Area, where a larger and richer world of technology companies, investors and engineers has been flourishing for decades longer. The odds were long that New York could catch up.

Now, the two cities are running closer to neck and neck than ever before.

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"New York is poised to become the premier technology ecosystem and the ideal place to launch the defining companies of the next decade…The city's vibrant culture, diverse industries and top talent are fueling its growth….we believe that New York will play a crucial role in fostering the transformative companies that will drive significant advancements in the coming years."

Kevin Ryan, AlleyCorp

TECH INDUSTRIES

89,000 Tech Jobs
149,000 Non-Tech Jobs

+

NON-TECH INDUSTRIES

131,000 Tech Jobs
Non-Tech Jobs

=

NYC TECH ECOSYSTEM

369,000 TOTAL JOBS
7% of Overall Workforce

Tech in Tech: a software engineer at Google.

Non-Tech in Tech: a human resources person at Meta.

Tech in Non-Tech: a data systems analyst at JPMorgan.

Source: HR&A analysis of Lightcast data; diagram not to scale.

369,000 TOTAL JOBS
7% of NYC Total Jobs

$291B ECONOMIC OUTPUT
28% of NYC Economic Output

$3.63B FISCAL IMPACT
2.6% of the City's Fiscal Revenues
1.5% of the State's Fiscal Revenues

1.5X HIGHER EARNINGS
in the tech ecosystem compared to the overall economy

+1.2 JOB MULTIPLIER
Every 1 tech ecosystem job creates 1.2 additional jobs, higher than other industries in the city
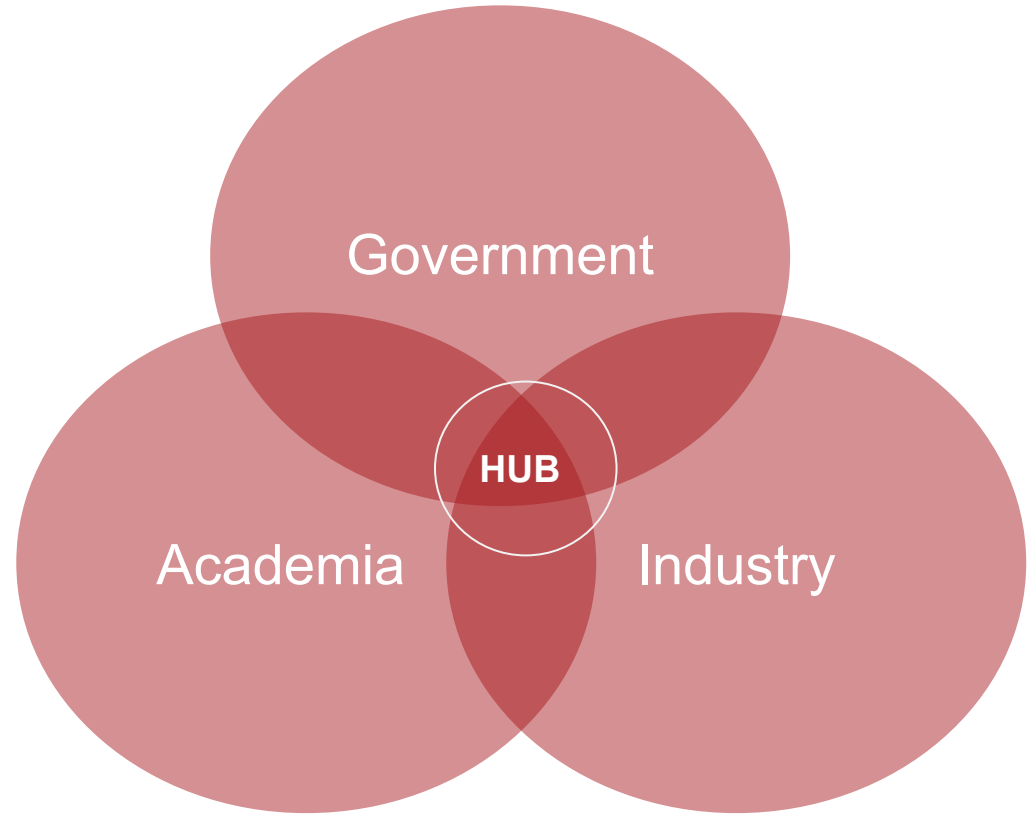
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*THE NEW YORK CITY TECH ECOSYSTEM NOVEMBER 2022 UPDATE

What is a HUB?

The Hub is a connector that bridges the gap between academic resources and public needs - organizing strategic partnerships, developing products and new programs between academia, industry, communities, and government.

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Our Approach

ENGAGE the city, communities and companies on impactful research

CONVENE key community and thought leaders

ATTRACT interesting and influential outside voices to campus

DEVELOP new projects, products and partnerships

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Our Mission

*We address pressing urban challenges and discover **new ways that digital technology can drive solutions**, engaging thought-leaders and communities to realize the positive impact of urban technologies.*

Research

Attract and support leading faculty and researchers in the development and deployment of advanced technologies that address urban challenges.

Educate

Educate the next generation of tech talent focused on improving cities and expand the responsible adoption of technology through

Engage

Develop rich and diverse projects and partnerships that bridge industry leadership and public needs.

Build

Support the expansion of the NYC tech ecosystem by supporting entrepreneurs who are building the next generation of urban tech

CORNELL TECH

Our Team

Urbanist in Residence
Dr. Anthony Townsend

Founding Director
Michael Samuelian

Product Manager
Nneka Sobers

Affiliated Faculty

UT Postdoc

Urban Tech Fellows

Student Research Coordinators

The Future of Urban Tech

Self-repairing roads and sewers. Forests and farms inside buildings. Software that follows our instructions rather than following us around. These are just some of the possibilities and pitfalls for urban tech in the decade ahead. This site is a kaleidoscope that lets you explore future breakthroughs, innovations, and applications that will reshape our cities and communities.

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Read the **introduction**

View the horizon scan **explorer**

Explore a forecast

Supercharged Infrastructure

Urban systems converge into a deep, actionable web.

Wild & Well

Urban design taps life science to improve well-being.

Resilient Corridors

Sustainable neighborhoods scale up.

Dark Plans

The chaos of urban life gives way to an algorithmic hum.

New Screen Deal

Inclusive innovation strikes back at surveillance capitalism.
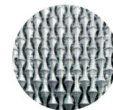
Urban Innovation Industrializes

Big business cracks the code of the city.

NYC Urban Tech Ecosystem Analysis

To create this analysis of New York City's new urban tech ecosystem, we screened thousands of tech enterprises throughout the five boroughs. To date, we have identified **510** engaged in urban tech. These were organized into eight categories of essential urban systems for buildings, food, energy, mobility and more. Two more categories cover innovations and resources that push everyone in urban tech forward.
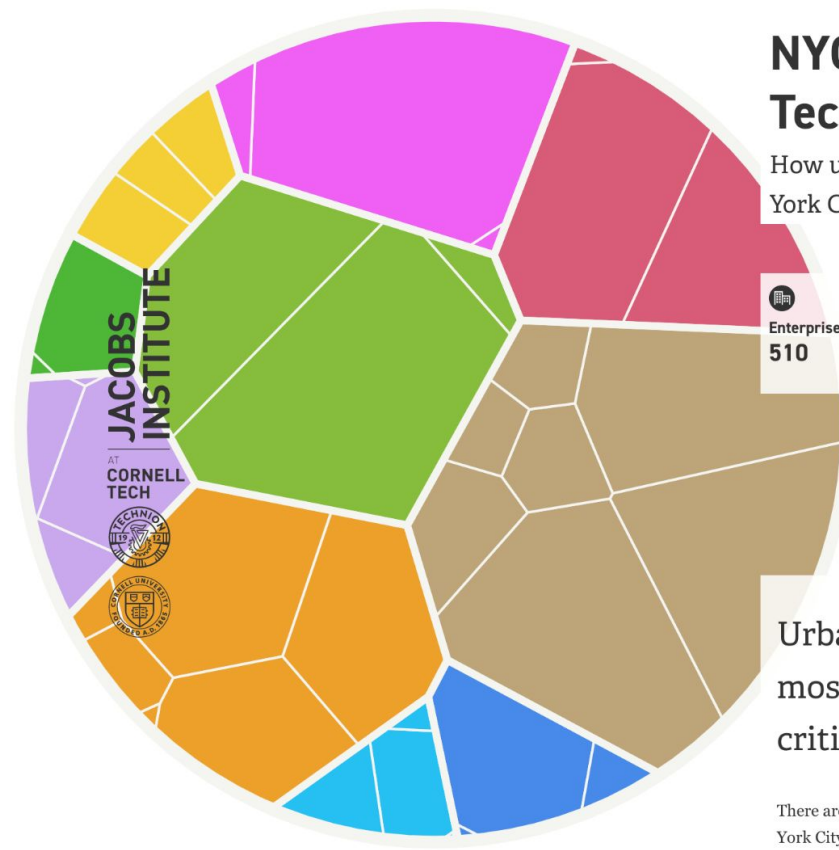
NYC's Urban Tech Engine

How urban tech became New York City's newest innovation

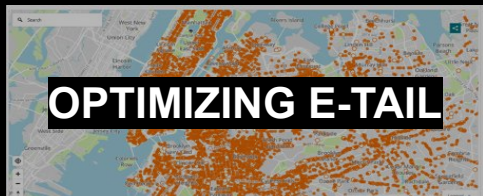| Enterprises	Investment	Employees
510	$17.4B	44.3k
	74% reporting	82% reporting

Urban tech is a mosaic of ten critical systems.

There are thousands of tech enterprises in New York City. They range in size from big companies to small startups. University research centers and government innovation

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CORNELL TECH

Research

CORNELL TECH

Optimize
urban systems

- TREEFOLIO
- 311 EQUITY
- OPTIMIZING E-TAIL

Enable
digital transformation
of government

- REBOOTING NYC
- UX FOR PUBLIC BENEFITS
- ORCHESTRATED DEVELOPMENT

Anticipate
the impacts of new
technologies in cities

- URBAN TECH HORIZON SCAN
- INITIATIVE 31
- METAVERSE METROPOLIS

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Tree Folio NYC

Design Across Scales Lab, Cornell AAP
Alexander Kobald
Joe Ferdinando

- A high-fidelity point cloud models of each street tree in NYC.
- Includes a visualization of the hyper-local impacts of shading on surrounding streets and buildings.
- Will be used to develop future tree planting strategies that maximize local impacts of individual trees for their cumulative impact against climate change.

https://labs.aap.cornell.edu/daslab/projects/tree-folio-nyc
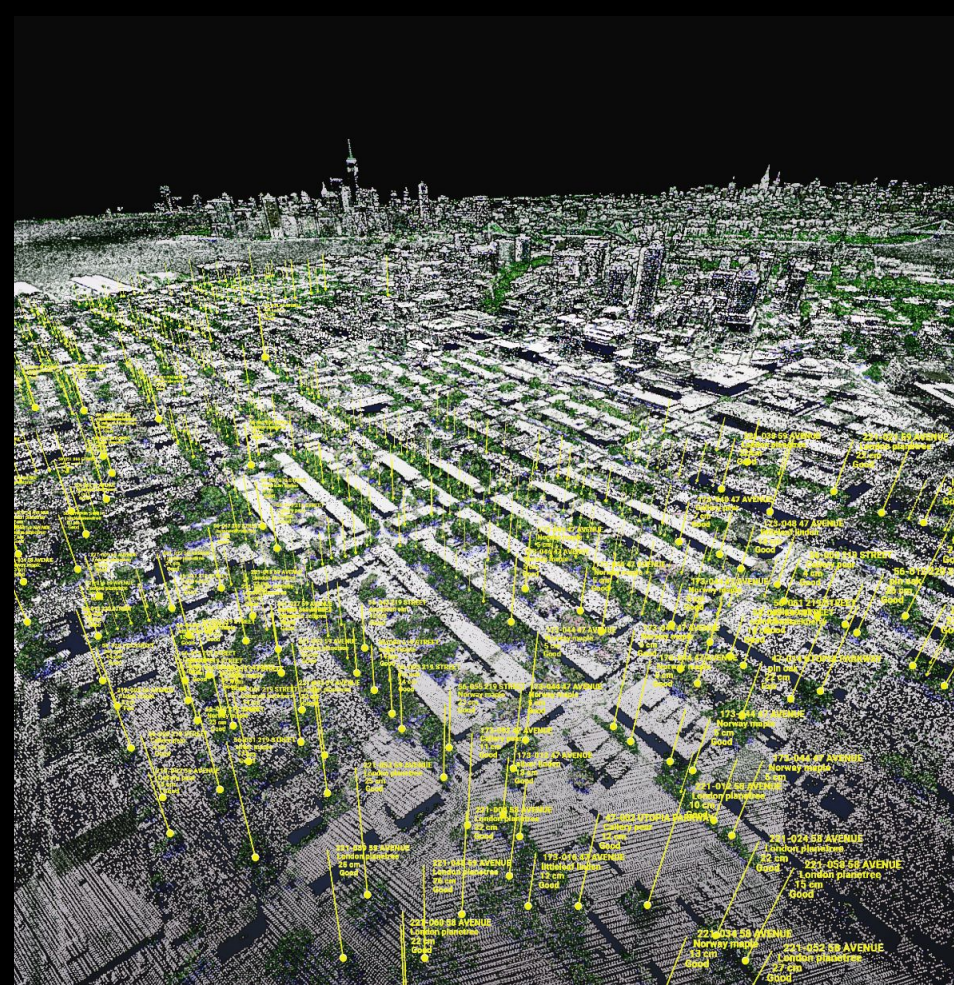
Efficiency and Equity in resident crowdsourcing

Asst. Prof. Nikhil Garg

The 311 system is used by NYC to learn about problems (potholes, fallen trees) that need to be fixed; agencies schedule inspections and work orders in response to reports

This is a large crowdsourcing online decision-making and resource allocation task, but there are many potential areas for inequities and inefficiencies:
- People in different neighborhoods may report problems heterogeneously
- The city may schedule inspections suboptimally

Data-driven tools are being developed to audit the current system and engineer interpretable, deployable inspection scheduling policies
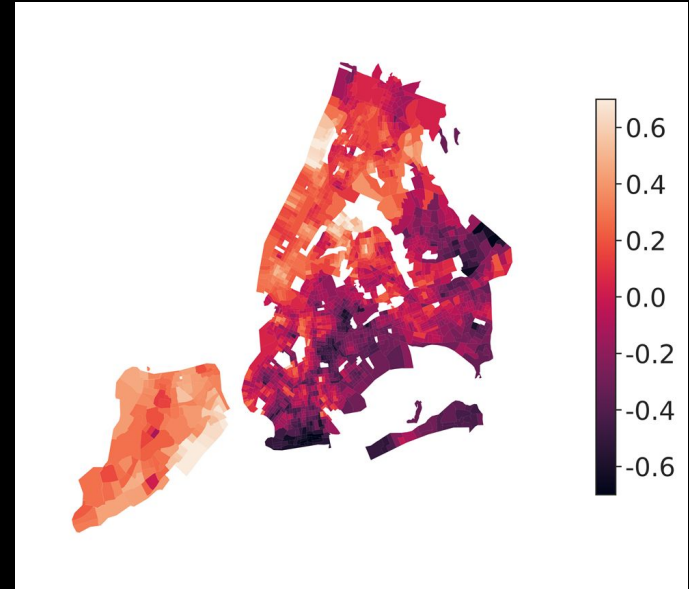
lighter colors mean higher 311 reporting rates

Urban Friendly e-Retail

Asst. Prof. Omar El Housni
Prof. Huseyin Topaloglu

Model and algorithms for inventory management and assortment optimization for online retail

- Finding the right product variety with limited storage in urban fulfillment centers
- Optimizing the safety stock
- Using local businesses for additional storage
- Personalizing the assortment offered for each customer

Data analysis of NYC food stores to study possibilities for locating forward distribution centers and alleviating food deserts.
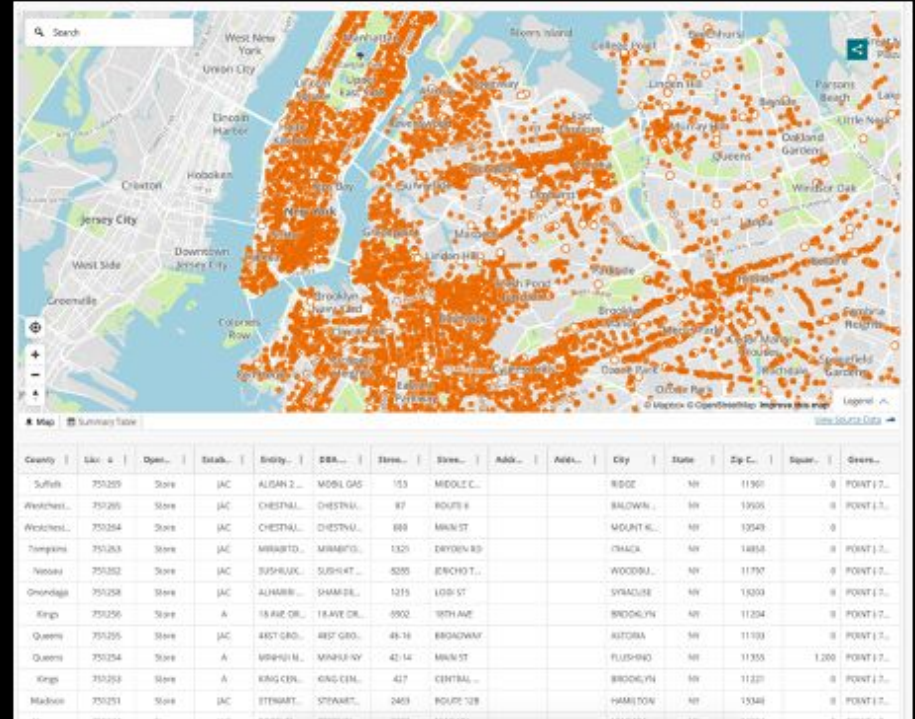
Rebooting NYC

Rit Aggarwala - 2021 Urban Tech Fellow

This year-long effort included a set of strategic recommendations for how the next mayoral administration and City Council should leverage technology to improve the lives of New Yorkers.

Foundations	Tech progress requires reassuring the public on privacy and developing greater capacity to implement tech solutions
Equity	Ensuring all New Yorkers can participate in the digital economy is a prerequisite for the City to rely more on what tech offers
Systems	Many City services and functions can be improved with technology
Engagement	A key area where the City can make use of technology is in greater public engagement and transparency
Futureproofing	The City has failed to get ahead of new technologies; existing institutions are not equipped to forecast how urban tech will evolve

Rebooting NYC
An Urban
Tech Agenda
for the Next
Administration

January 2022

Written by
Rohit T. Aggarwala · Matt Stempeck
Michael E. Bloomberg · Conor Lyman
Victoria M. Woo · Preksha Agarwal
Sarah Goodyear · Andrew Salzberg
Rebecca Lassman · Linda Jaber
Adrian Silver · Michael M. Samuelian
Phillip D. Ellison

JACOBS INSTITUTE AT CORNELL TECH

URBAN TECH HUB

The Affordable Housing Application

Mirtha Santana - Urban Tech Fellow

Vacancy of new units of affordable housing is a systemic problem that creates challenges for tenants and developers, Today, the processes used by the city to market new-construction affordable (or income restricted) homes is suboptimal. This research will investigate how technology can be used to improve the experience of applicants and property owners, centering the experiences of low income renters.

- Convene a task force of people with lived-experience,
- Interview property owners, advocates, community based organization and government,
- Develop process maps,
- Analyze the costs associated with current processes
- Research case studies of cities that have used tech to improve benefit delivery,
- Explore data sharing agreements

DEVELOPMENTS

HOME > DEVELOPMENTS > NYC DEVELOPMENT CO-LOCATES SHELTER AND AFFORDABLE HOUSING

Posted on: March 12, 2019

AFFORDABLE HOUSING FINANCE

NYC Development Co-Locates Shelter and Affordable Housing

50,000 applications submitted for 135 apartments.

By Donna Kimura

Courtesy Bright Power

Reaching New Heights and the Apartments at Landing Road development was recognized with the Community Impact Award from the New York Housing Conference.

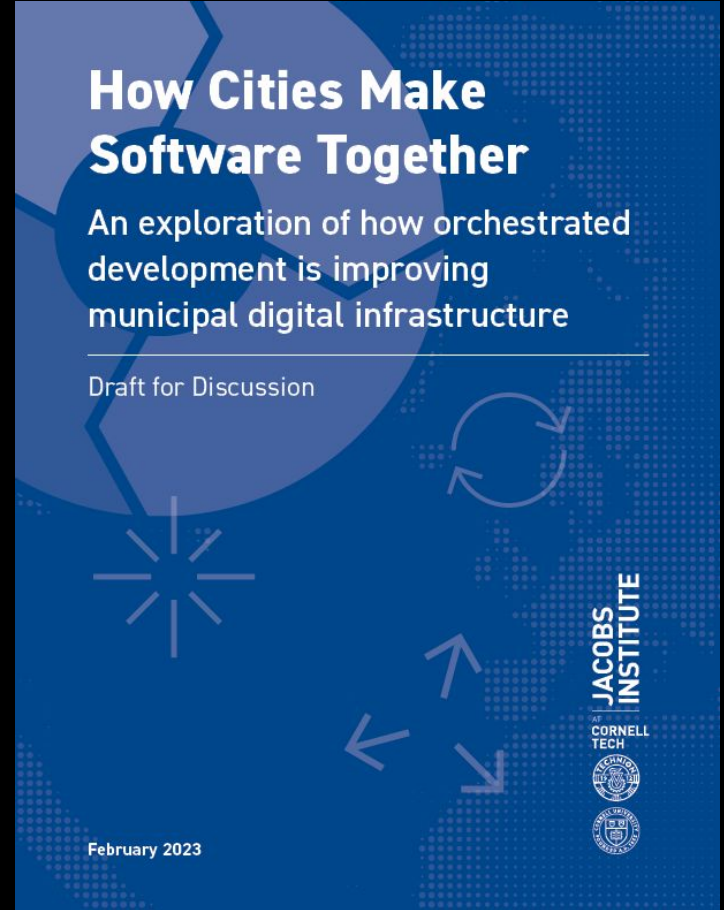# Collaborative Municipal Open Source Software (OSS)

Dr. Anthony Townsend

Nneka Sobers

- Successful collaborations between cities require intermediaries to collaborate on OSS
- Case Studies: LocalGov Drupal, CitySDK, Open Trip Planner, etc.
- Published interactive report with specific recommendations for developers, city government, and funders.

How Cities Make Software Together

An exploration of how orchestrated development is improving municipal digital infrastructure

Draft for Discussion

JACOBS INSTITUTE
AT CORNELL TECH

February 2023

https://orchestrated.dev/

24

The Metaverse Metropolis

Greg Lindsay- Urban Tech Fellow

- Meta, Apple, Sony and others are investing $$$ in "the Metaverse" — a new computing paradigm in which information and services are overlaid on urban infrastructure. Given how much cities struggled with the last wave of "disruptive" technologies, how can they build capacity and alliances this time around?
- "The Metaverse Metropolis" has assembled a cohort of 20+ current- and former public officials from NYC, LA, DC, Philadelphia, Miami, etc. to educate and build a community of practice around augmented reality.
- Timeframe: January-June 2023, with a capstone event in July 2023 and final report in Fall 2023

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Supporting Participatory Learning in Urban Agriculture with Wireless Sensing and VR

Tapan Parikh

Rajalakshmi Nandakumar

Noah Snavely

- Wireless sensing for detecting metal contaminants
- Virtual Reality Platform for Agricultural Extension
- Reconstructing 3D Models of Plants using Deep Learning

"New" New York: Initiative 31 Blueprint
Cara Eckholm - Urban Tech Fellow

In December 2022, New York's Governor and Mayor released the "New" New York report focussed on transforming New York City's job centers to support the ways people will live and work in the future. **Initiative 31** in the report focuses on the goal of making NYC the global leader in urban technology. To advance this work, the City aims to build a consolidated "front-door" for engaging and growing the urban tech sector. Cornell Tech is helping the City of New York design a research-backed blueprint to implement Initiative 31.

The goals of the research are:
1. Improved use of tech to achieve New York's policy goals
2. Growth of the urban tech sector (market size, job creation)
3. Establish New York's brand as the leader in urban tech

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Education

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TECH
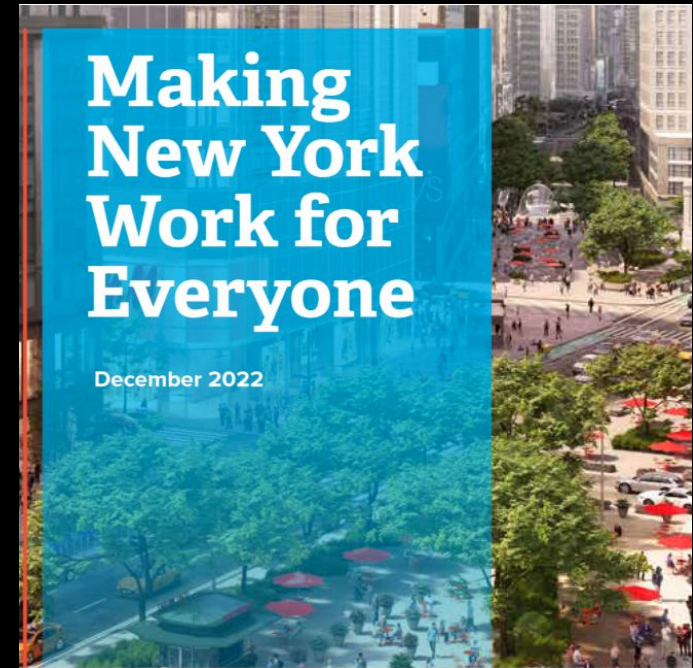
Master of Information Science with a Concentration in Urban Technology
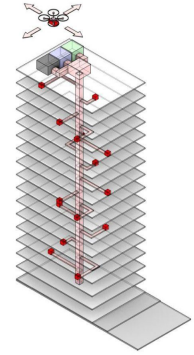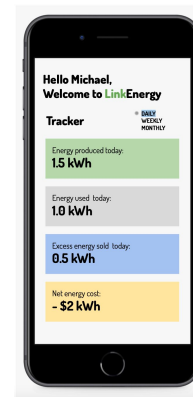
Urban Data
Prof. Emma Pierson

The basic goal of this course is to empower students by closing the gap between the data-related questions asked and the ones we have the technical training to answer.

Urban Systems
Michael Samuelian

How do systems make a city? This course explores how a city is composed of complex interactions of urban systems, ranging from infrastructure and transportation networks to social, cultural and political systems.

Urban Design
Yasmeen Pattie
Steven Stainbrook

What is urban design, and how does it impact innovation? In turn, how can innovation, especially in technology, address urban issues?

Master of Information Science with a Concentration in Urban Technology

Urban Tech Students
2022 Graduating Class

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TECH

Local Infrastructure Hub: Technology + Innovation Center Series

Recent and Upcoming Sessions

- The Surprising Technologies of Nature Based Solutions
- Fair Paths to EV Charging
- Transformative Technology for Transportation Resilience
- Electric Buses: Lessons from Early Adopters
- Innovative Solutions for Safe Streets - April
- Data Privacy Assessment:Best Practices for Cities - May
- Broadband Equity, Access and Development - June

Highlights

Webinars have showcased the work of experts from Kansas City, Honolulu, St. Paul, Savannah and Charlotte. Speakers from the Electrification Coalition and Smart Columbus have also shared their expertise. Attendees have include 8 Mayors and 187 city staff.

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Protecting Privacy and Security with Digital Rights

Nneka Sobers
Meg Young

What Works Cities | Bloomberg Philanthropies

As cities' use of data and new technologies accelerate, municipal responsibilities for privacy, cybersecurity, equity, and accountability become more complex. **How can cities adapt best practices for privacy, security, and public engagement to ensure public trust in their use of emerging technologies?**

Participants include local government leadership from the following cities:

New Orleans, Louisiana

Long Beach, California

Phoenix, Arizona

Denver, Colorado

Syracuse, New York

Norfolk, Virginia

Boise, Idaho

Henderson, Nevada

Mogi das Cruzes, Brazil

Partners

Bloomberg Philanthropies

RESULTS FOR AMERICA

DATA& SOCIETY

Entrepreneurship

CORNELL TECH

Dr. Ardalan Koshrowpour,

2016 Runway Postdoc

OnSiteIQ provides visualization and monitoring of construction sites using computer vision technologies.

$8.5 million raised

Over 1 million sf continuously monitored construction
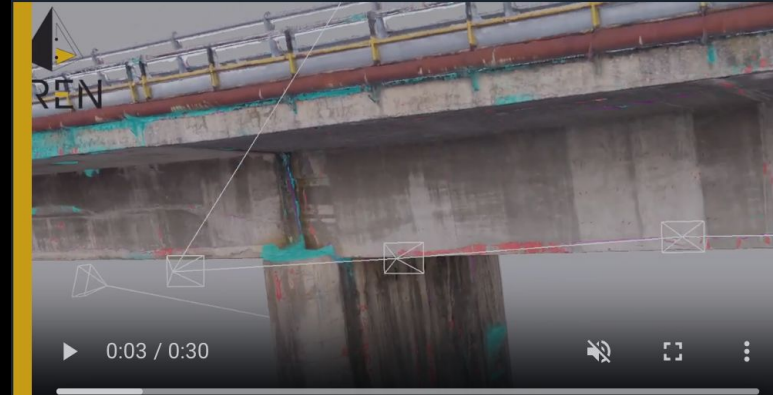
+500% growth y/y.

Dr. Ali Khaloo

2019
Runway
Postdoc

 AREN

Aren creates a digital twin of large infrastructure assets and uses predictive intelligence that helps optimize repair & maintenance schedules and spending.

Raised $2 million in less than 2 years

Working for international customers in Netherlands and Japan

0:03 / 0:30

Automatically Detects & Quantifies

Aren's patented Artificial Intelligence(AI) automatically detects and quantifies the severity of any damage, tracks changes over time, assesses how the damage is evolving and calculates the rate of deterioration of the asset to predict future structural changes.

CORNELL TECH

Dr. Daphna Levine

2022 Runway Postdoc

UrbanMix is a 3D visualization software for managing and collaborating on housing redevelopment. It works as a Digital Twin for asset portfolio management with a Machine Learning engine.

Selected as part of NYCEDC Founders Cohort

BUILDING NO. 612
10 E 3RD AVE

DEVELOPER
AFFORDABLE UNITS

managing authority : HUD
number of units : 400
affordable units : 80
income level : Moderate to low
vacancy/occupation : 85%
rent/buy price : 80% AMI

CORNELL TECH

Engagement
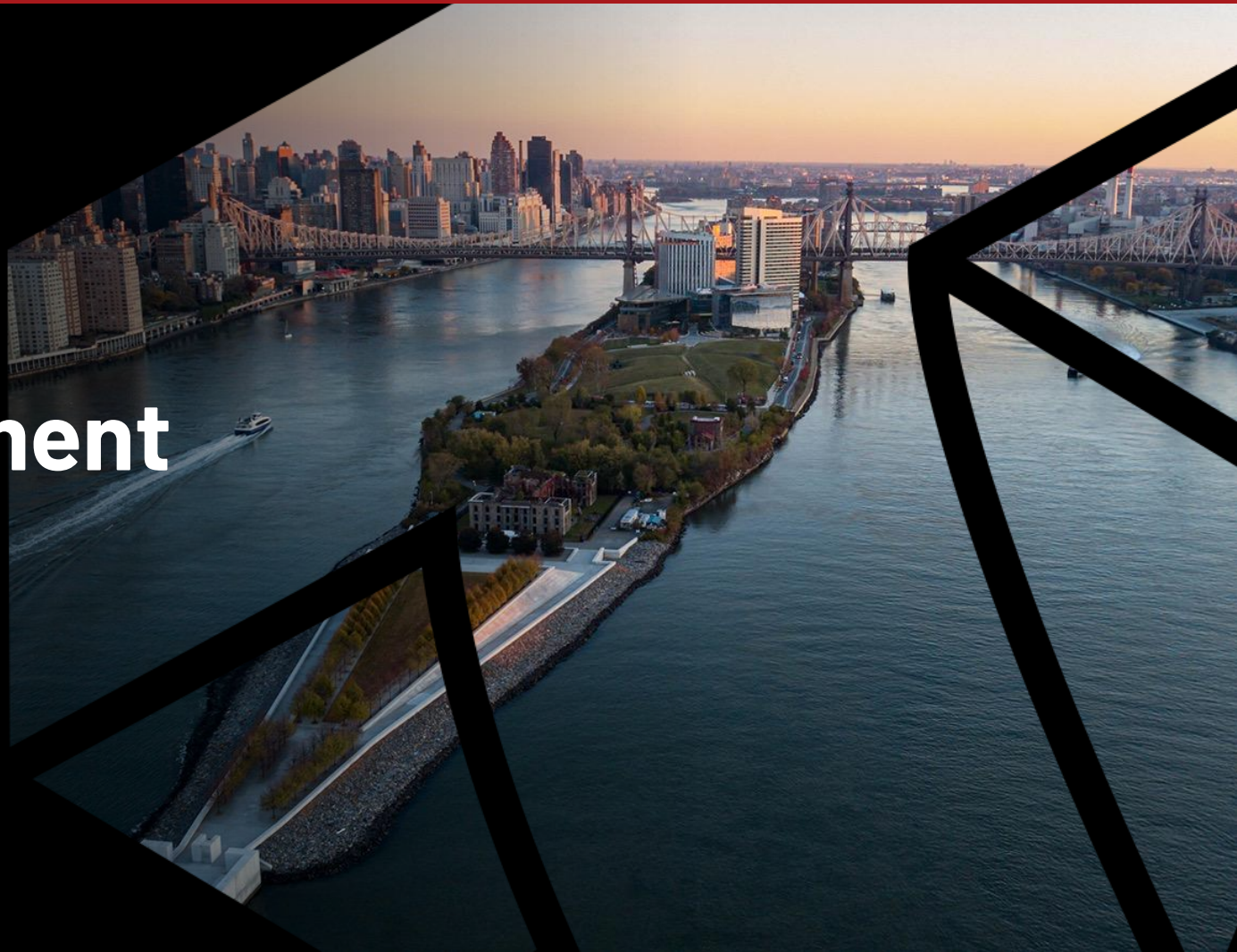
"Everyone that makes New York City the city that never sleeps... That's our community."

Domingo Morales

CEO & Co-founder

Compost Power

"With what's coming out of the Green Labor Market...we have to be prepared to work with the private sector when these jobs become available."

Clare Newman

President & CEO

Trust for Governors Island

"I've never seen anything like the quantity and quality that has come into climate tech. We are seeing a whole lot of people moving into this field, which is amazing." -

Micah Kotch Partner at Blackhorn Ventures

"Most of the time when you want to do important things, you have to be uncomfortable."

Kate Frucher

Managing Director | Co–Founder at The Clean Fight

"When you connect the dots about why someone should care about something then you can help them learn."

Tonya Gayle

Executive Director at Green City Force

"Lived experiences should be the guidance of solutions."

Liz Sisson Partner

CIV: LAB

Industry - 51%

Non-Profit - 23%

Government - 10%

Academic - 16%
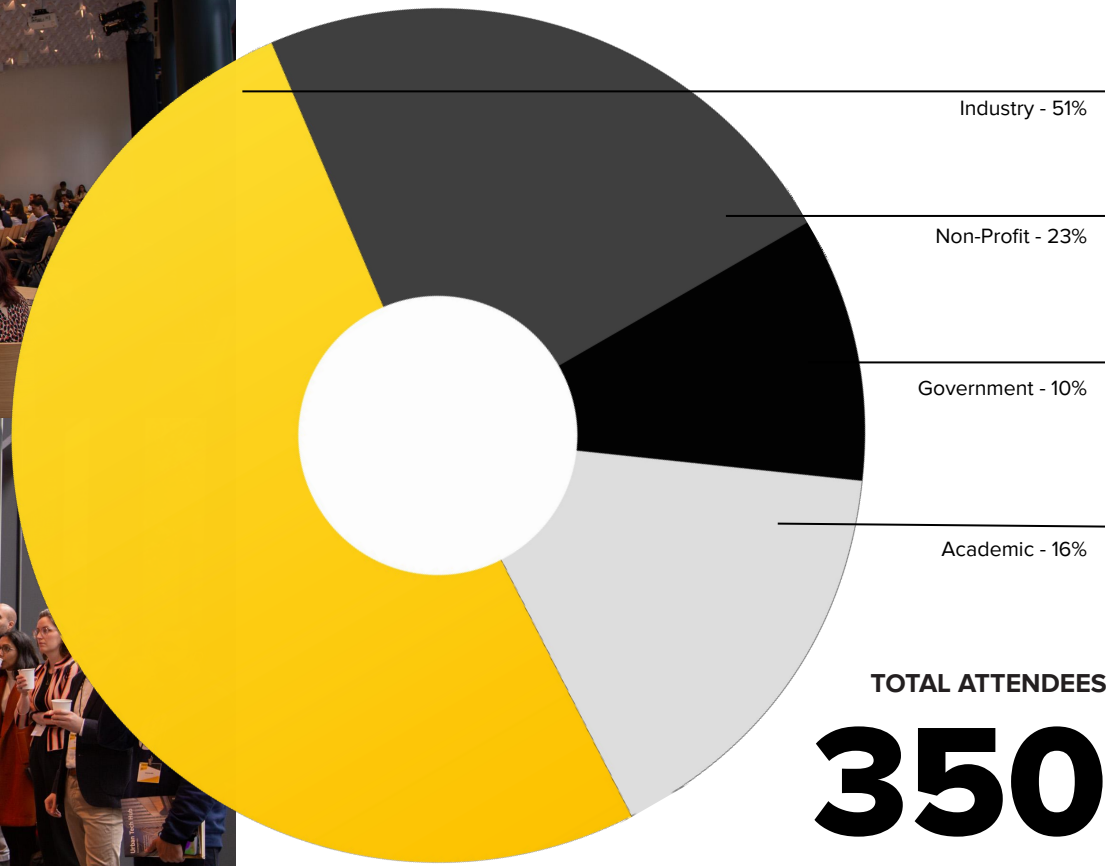
TOTAL ATTENDEES

350

Thank you.

urban.tech.cornell.edu