



Lory Michelle Bresciani Miristice

Nationality: Italian

ABOUT ME

Lory Bresciani is an urban mobility solutions researcher dedicated to enhancing city transport efficiency while minimizing environmental and social impacts. With a PhD in Transportation and Infrastructures from Sapienza University of Rome, Lory currently pursues post-doctoral research there. Her expertise lies in dynamic simulation and real-time management of transit systems, focusing on Mobility as a Service.

Lory's educational journey includes a Diploma in Electronic and Telecommunications, a Bachelor's Degree in Civil Engineering, and a Master's Degree in Transport System Engineering, all of which underpin her profound knowledge in the field.

Beyond academia, Lory excels as a developer, driven by a passion for sustainable mobility solutions. Her experience at PTV SISTeMA in software optimization and traffic control, coupled with roles at Moving Projects and Movision focusing on cloud computing and project management, demonstrates her diverse skill set. Her leadership, technical acumen in C#, .Net, Java, SQL, Python, Firebase, and Microsoft Azure, and strong problem-solving abilities make her an invaluable asset in any collaborative effort.

As vice-president of A.P.S. Bike4City, a local association in Rome, Lory champions sustainable mobility, leading fundraising initiatives and advocating for increased bicycle usage to foster cleaner, healthier urban environments. Lory is also a representative of Bike4City in the citizen council "Consulta Cittadina Sicurezza Stradale, Mobilità Dolce e Sostenibilità" of Rome Municipality.

Driven by a passion for applied research, Lory is determined to make a tangible impact on the transportation industry. Her career aspirations are guided by this commitment, aiming to continue her research in applied fields. She eagerly anticipates collaborating with like-minded individuals and innovative companies to effect positive change in transportation and mobility, **contributing to a more sustainable future for all.**

WORK EXPERIENCE

[01/07/2023 – Current]

Postdoctoral Researcher and R&D leader

Sapienza Università di Roma

City: Roma | **Country:** Italy

As a postdoctoral researcher and Research and Development Leader at Sapienza University of Rome, I lead a dedicated team focused on advancing simulation tools for addressing urban mobility challenges. Our research endeavors aim to innovate and optimize urban transport systems, with a particular emphasis on enhancing efficiency, sustainability, and citizen engagement.

My role involves overseeing the development and application of sophisticated simulation models, known as digital twins, which replicate and analyze urban transport dynamics in real-time. These tools allow us to simulate various scenarios and evaluate the impacts of potential interventions on traffic flow, emissions, and overall urban livability.

Collaborating closely with multidisciplinary teams of researchers, engineers, and urban planners, we strive to translate theoretical insights into practical solutions. Our work not only involves theoretical advancements but also includes practical implementations through pilot projects and collaborations with local authorities and transport agencies.

Beyond technical research, I am actively involved in academic publications, contributing to the broader discourse on urban mobility and simulation methodologies. These contributions aim to influence policy-making and urban planning practices, advocating for sustainable and efficient transport solutions.

Additionally, my leadership extends to mentoring and guiding graduate students and junior researchers, fostering a collaborative and innovative research environment. Together, we aim to make significant strides in understanding and improving urban mobility through cutting-edge simulation tools and methodologies.

My tenure at Sapienza University has been marked by a commitment to excellence in research, a passion for applied innovation, and a dedication to shaping the future of urban mobility for more sustainable and resilient cities.

[01/01/2024 – Current] **Sustainable Mobility Advocate**

Bike4City

City: Roma | **Country:** Italy

In my role as Sustainable Mobility Advocate for Bike4City, I am deeply committed to promoting sustainable transportation solutions and fostering a bicycle-friendly urban environment in Rome. Leading initiatives to increase bicycle usage, I actively engage in fundraising efforts and community outreach to promote cleaner, healthier city living.

A pivotal aspect of my advocacy involves representing Bike4City within the "Consulta Cittadina Sicurezza Stradale, Mobilità Dolce e Sostenibilità" of Rome Municipality. In this capacity, I collaborate with local government officials, stakeholders, and community leaders to shape policies and initiatives that enhance road safety, promote soft mobility options, and support sustainable urban development.

Beyond policy advocacy, I spearhead educational campaigns and awareness programs aimed at reducing road accidents and improving traffic safety. Through workshops, public forums, and community events, I advocate for responsible road behavior and highlight the benefits of integrating bicycles into urban transport systems.

My involvement with Bike4City extends to strategic partnerships with civic organizations, businesses, and educational institutions, fostering a network of support for sustainable mobility initiatives. Together, we work towards creating a more inclusive and environmentally friendly urban landscape that prioritizes the well-being of its residents and the sustainability of its transportation infrastructure.

[2023 – 2024] **Website Management for PhD Infrastructures & Transport**

DICEA, Sapienza University of Rome

City: Roma | **Country:** Italy

Support for PhD Program Coordination:

- Mapped the current status of the website in alignment with PhD accreditation requirements.
- Collected and integrated missing content, including researcher profiles, international research projects, and news updates.
- Managed the input of data related to various projects (e.g., PON, PNRR).
- Ensured the accuracy and quality of English translations to enhance international visibility of research.
- Regularly updated content in both Italian and English, coordinating with faculty and PhD students to keep information current.

[09/2022 – 06/2023] **Mobility Solutions Consultant**

Moving Projects Srl

City: Rome | **Country:** Italy

As a consultant for the innovative startup Moving Projects, I played a pivotal role in designing a sophisticated cloud platform aimed at managing orders and streamlining last-mile deliveries. This user-friendly platform automated the import of client orders and driver shifts, facilitated order selection for the following day, and harnessed a cutting-edge cloud routing service from my research group at Sapienza University of Rome to determine the most efficient delivery plans for selected orders.

Throughout this engaging project, I acquired valuable expertise in cloud computing, software design, and project management, while keeping abreast of the latest developments and trends in the logistics sector. My client-centric approach to designing the cloud platform based on the specific requirements of a Moving Projects logistics client expanded my experience in identifying and addressing client needs.

To bring this project to fruition, I utilized my proficiency in:

1. JavaScript and HTML to create an intuitive graphical user interface.
2. Azure and Firebase for cloud-based tools, ensuring flexibility and scalability in our solutions.
3. C# for the development of a reliable routing planning service.
4. Open Street Map and Deck.gl for impactful data visualization and geospatial analysis.

Overall, my tenure at Moving Projects offered a unique opportunity to apply my existing skill set in a practical context, foster new competencies, and deepen my understanding of client needs. This experience has equipped me with the ability to work collaboratively on designing and implementing tailored solutions that align with client expectations.

[02/2018 – 03/2023] **Solutions developer**

PTV SISTeMA Srl

City: Rome | **Country:** Italy | **Business or sector:** Transportation and storage

At PTV SISTeMA, I had the opportunity to immerse myself in the dynamic world of mobility software solutions, significantly enriching my professional experience. My work primarily revolved around the development and application of intricate theoretical models to simulate and optimize public transportation systems. This allowed me to predict passenger flow while adapting to real-time events and measures.

My achievements include creating a powerful software service for rolling horizon simulations, which greatly enhanced the efficiency of traffic control centers for public transportation. I also contributed to the refinement of existing software models and implementations within the company, leveraging state-of-the-art technologies like Protobuf and Active MQ for applications such as private traffic control centers, GPS-based traffic status tracking, and multimodal route planning.

Throughout my time at PTV SISTeMA, I provided exceptional customer support, sharpening my communication and problem-solving abilities as I quickly and effectively addressed client concerns and crafted tailored solutions. Collaborating seamlessly with my team, I played a key role in developing software solutions and implementing Agile, Scrum, and SAFE methodologies for optimal project management and inter-team communication.

In addition, I honed my skills in various programming languages, including C#, PostgreSQL, and Visual Basic. By utilizing these languages in different contexts, such as data modeling and database management, I expanded my knowledge of data structures and algorithms. Overall, my experience at PTV SISTeMA has been invaluable, providing me with a solid foundation in mobility software solutions and a diverse skill set that I will carry forward in my career.

[01/2022 – 08/2022] **Mobility Solutions consultant**

Movesion Srl

City: Rome | **Country:** Italy

As a consultant at Movesion, I had the honor of contributing to the "Chiama Taxi" project for "Roma Servizi per la Mobilità." This innovative project focused on managing Rome's taxi fleet and streamlining reservations through an automated switchboard or a dedicated mobile app.

Though I joined the project after its initial design phase, my strong problem-solving skills and ability to collaborate effectively with various Movision partner companies allowed me to address challenges and contribute to the solution's development. Engaging with the client, "Roma Servizi per la Mobilità," provided me with the opportunity to refine my client interaction skills and bolster my project management expertise.

The project hinged on a cloud architecture built on Azure, incorporating several advanced modules that leveraged state-of-the-art technologies, such as topic-based messaging, B2C user management, PostgreSQL databases, and virtual machines and web apps. This experience enriched my knowledge of cloud computing technologies and broadened my professional skillset, particularly in project management and client engagement.

My time at Movision proved to be both rewarding and invaluable. The "Chiama Taxi" project presented a complex and significant challenge, pushing me to hone my problem-solving, communication, and project management skills to new heights.

[06/2017 – 01/2019] **Internship in Transport Modelling**

PTV SISTeMA Srl

City: Rome | **Country:** Italy

During my internship at PTV SISTeMA, I acquired valuable experience in analyzing and optimizing code for offline public transportation modeling. My primary focus was on simulating passenger flow and pinpointing congestion issues such as fail-to-board or overcrowding incidents on vehicles or at stops within a city's public transportation system.

Throughout the process, I tested the code, identified bugs, and rectified them as needed, all while integrating new models to enhance the original implementation. This experience allowed me to sharpen my skills in software testing, debugging, and optimization, which I later applied to my professional endeavors.

The opportunity to work at PTV SISTeMA enabled me to put my theoretical knowledge into practice in a real-world context, develop my analytical abilities, and deepen my comprehension of public transportation modeling. Additionally, I gained exposure to cutting-edge software technologies and tools employed in the transportation industry, such as PTV Visum.

EDUCATION AND TRAINING

[11/2019 – 05/2024] **PhD in Transportation and Infrastructures**

Sapienza Università di Roma | https://phd.uniroma1.it/web/LORY-MICHELLE-BRESCIANI-MIRISTICE_nT1699496_IT.aspx

City: Rome | **Country:** Italy | | **Final grade:** Excellent cumLaude | **Thesis:** Dynamic Simulation of Route Choice and Congestion Phenomena on Public Transport Networks

During my PhD studies in Transportation and Infrastructures at Sapienza, I had the privilege of working with esteemed researchers, under the guidance of Professor Guido Gentile.

My research on the dynamic simulation and real-time management of transit systems in the context of Mobility as a Service culminated in my thesis, titled "Dynamic Simulation of Route Choice and Congestion Phenomena on Public Transport Networks," which proposed innovative simulation models for dynamic transit assignment. These models account for congestion phenomena such as onboard overcrowding and strict capacity constraints, while also incorporating real-time measurement and events to provide short-term forecasts of passenger volumes. I am pleased to have implemented these models in

the PTV Optima Transit software prototype of PTV SISTeMA, which has the potential to significantly enhance the reliability and accessibility of public transportation systems.

In addition, I conducted research on dynamic vehicle routing algorithms for mobility and freight as a service, where I developed automatic tools for the match of supply and demand in innovative ride-hailing, ride-sharing, and delivery services. I also had the opportunity to apply these tools to real-world scenarios, collaborating with Moving Projects on the "Last-Mile Logistic Platform" project.

As part of my PhD experience, I presented papers at conferences, including the 10th symposium of the European Association for Research in Transportation (hEART), the 7th International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS), and the 22nd Swiss Transport Research Conference (STRC). I also published papers in scientific journals, sharing my research with the wider scientific community and receiving valuable feedback from experts in the field.

Throughout my PhD journey, I also had the opportunity to mentor and tutor master students and new PhD students, developing my mentoring skills. Overall, my PhD experience was both challenging and rewarding, providing me with valuable skills in research, collaboration, project management, and international experience. I am now excited to pursue a career in the applied research field, where I can continue to make a meaningful impact on the transportation sector and beyond.

[09/2015 – 01/2018] **Master's degree in Transport Systems Engineering**

Sapienza Università di Roma

City: Rome | **Country:** Italy | **Field(s) of study:** Transport Systems Engineering | **Final grade:** 110/110 e Lode | **Thesis:** Simulation of Congestion Phenomena on Transit Networks

During my Master's program in Transport System Engineering at Sapienza University of Rome, I gained comprehensive knowledge and experience in transportation-related areas. My coursework included transport modeling and planning, traffic engineering and ITS, simulation in transportation and logistics, programming and transport optimization, vehicle routing and distribution, maritime logistics, optimization in public transport, railway operations and management, and signaling systems and technologies for railways.

My academic journey was further enriched with a one-year exchange at the Technical University of Denmark (DTU) in Copenhagen. There, I had the opportunity to work on several practical projects with diverse teams comprising individuals from various nationalities. This experience allowed me to enhance my technical skills and problem-solving abilities by applying code to optimize transportation.

For my master's thesis, titled "Simulation of Congestion Phenomena on Transit Networks," I collaborated with Professor Guido Gentile and completed an internship at PTV SISTeMA. This hands-on experience provided me with valuable expertise in public transportation modeling, focusing on simulating passenger flow and identifying congestion issues, such as overcrowding and fail-to-board situations.

During the internship, I honed my skills in software testing, debugging, and optimization. I analyzed and improved code for offline public transportation modeling by identifying bugs and introducing new models. This combination of academic and professional experience has significantly contributed to my growth as a transportation engineer and continues to serve me well in my career.

[09/2010 – 07/2014] **Bachelor's degree in Civil Engineering**

Università degli Studi di Brescia

City: Brescia | **Country:** Italy | **Field(s) of study:** Engineering, manufacturing and construction: • *Building and civil engineering* | **Final grade:** 96/110 | **Thesis:** Implementation of LWR Model on Networks

Throughout my Bachelor's degree in Civil Engineering, I gained a solid foundation in various disciplines such as mathematical analysis, algebra, geometry, physics, technical physics, mechanics, rational mechanics, construction science, technical architecture, architecture surveying, technical drawing, urban sociology, construction techniques, geotechnics, and history of architecture. This foundational knowledge set the stage for my further studies in transportation engineering.

In addition to these core subjects, I explored road and transportation engineering, delving into topics such as traffic flow modeling, game theory, and the Braess paradox. For my Bachelor's thesis, titled "Implementation of LWR Model on Networks," I had the opportunity to work under the supervision of Professor Rinaldo M. Colombo. This project involved implementing the LWR model, game theory, and the Braess paradox on a simple road network using Python. I conducted simulations and analyses, which fueled my interest in addressing traffic congestion issues through innovative software solutions and allowed me to apply my theoretical knowledge to real-world scenarios, further developing my problem-solving skills.

My Bachelor's degree in Civil Engineering provided me with a strong foundation and valuable experience in the field, which I built upon during my Master's program in Transport System Engineering and in my professional career.

[09/2005 – 06/2010]

High School Diploma in Electronics and Telecommunications

ITIS Benedetto Castelli

City: Brescia | **Country:** Italy | | **Final grade:** 100/100 | **Thesis:** Autonomous Railway Model: a Practical Implementation

During my high school studies at ITIS Castelli, I gained a strong foundation in mathematics, physics, and chemistry, with a specific focus on digital and analog electronics, electrical engineering, systems, and telecommunications. The program had a theoretical and practical approach, which included extensive laboratory experience.

As part of my studies, I specialized in microcontrollers and software solutions for control and automation. For my final project, titled "Autonomous Railway Model: a Practical Implementation," I automated a miniature train model to simulate a single-track rail transportation system, where switches could only occur at stations. The model included two trains running in opposite directions in a loop, sensors to detect the train's position, and state control software to manage the motor's automated control to prevent accidents.

During my time in school, I also volunteered as a tutor to assist students in need and taught computer classes to middle school students through the school's outreach programs. Through my experience in electronics and telecommunications, I developed a strong foundation in technical skills and problem-solving, which I have been able to apply throughout my academic and professional career.

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C1 READING C2 WRITING C1

SPOKEN PRODUCTION B2 SPOKEN INTERACTION C1

DIGITAL SKILLS

My Digital Skills

Programming Languages

C# | javascript | HTML

Cloud Technologies

Azure | Firebase | Devops: Docker, Jenkins

Data Visualization and Geospatial Analysis

deck.gl | Open Street Map

Others

GIT | PTV Visum | Microsoft Office | PostresSQL

PUBLICATIONS

- [2024] **Optimizing Ride-Sharing Potential in New York City: A Dynamic Algorithm Analysis of Peak and Off-Peak Demand Scenarios**
- M. Afsari, N. Ippolito, L.M. Bresciani Miristice and G. Gentile, "Optimizing Ride-Sharing Potential in New York City: A Dynamic Algorithm Analysis of Peak and Off-Peak Demand Scenarios", Reliability and Statistics in Transportation and Communication. RelStat 2023. Lecture Notes in Networks and Systems, 2024, vol 913. Springer, Cham. doi: 10.1007/978-3-031-53598-7_3
- [2024] **[GPS-based trip phase and waiting time detection to and from public transport stops via machine learning models](#)**
- S. H. Hosseini, S. Pourkhosro, G. Gentile and L. M. Bresciani Miristice, "GPS-Based Trip Phase and Waiting Time Detection to and from Public Transport Stops Via Machine Learning Models ", Transportation Research Procedia, 2024, vol. 78, pp. 530-537, doi: 10.1016/j.trpro.2024.02.066.
- [2024] **[Environmental benefits of taxi ride-sharing in New York City](#)**
- M. Afsari, N. Ippolito, L. M. Bresciani Miristice and G. Gentile "Environmental benefits of taxi ride-sharing in New York City", Transportation Research Procedia, 2024, vol. 78, pp. 345-352, doi: 10.1016/j.trpro.2024.02.044.
- [2023] **[Analysing distribution approaches for efficient urban logistics](#)**
- S. Salehi, N. Ippolito, G. Gentile, and L. M. Bresciani Miristice (2024) "Analysing distribution approaches for efficient urban logistics", 2023 Transport and Telecommunication Journal, 2023, vol. 24, no. 4, pp. 483-491, doi: 10.2478/ttj-2023-0038.
- [2023] **[Inferring Station Numbers in Metro Trips Using Mobile Magnetometer Sensor via an Unsupervised K-means Clustering Algorithm](#)**
- S. H. Hosseini, G. Gentile, K. K. Varghese and L. M. Bresciani Miristice, "Inferring Station Numbers in Metro Trips Using Mobile Magnetometer Sensor via an Unsupervised K-means Clustering Algorithm," 2023 8th International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS), Nice, France, 2023, pp. 1-6, doi: 10.1109/MT-ITS56129.2023.10241558.
- [2023] **[Last-mile-logistic Platform for companies within urban areas](#)**
- N. Ippolito, L. M. Bresciani Miristice and G. Gentile, "Last-Mile-Logistic Platform for Companies within Urban Areas," 2023 8th International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS), Nice, France, 2023, pp. 1-6, doi: 10.1109/MTITS56129.2023.10241672.

[2023] [Real-Time passengers forecasting in congested transit networks considering dynamic service disruptions and passenger count data](#)
L. M. Bresciani Miristice, G. Gentile, F. Corman, D. Tiddi and L. Meschini, "*Real-Time passengers forecasting in congested transit networks considering dynamic service disruptions and passenger count data*," 2023 8th International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS), Nice, France, 2023, pp. 1-7, doi: 10.1109/MT-ITS56129.2023.10241550.

[2021] [The Hyper Run Assignment Model: simulation on a diachronic graph of congested transit networks with fail-to-board probabilities at stops](#)
G. Gentile, L. M. Bresciani Miristice, D. Tiddi and L. Meschini, "*The Hyper Run Assignment Model: simulation on a diachronic graph of congested transit networks with fail-to-board probabilities at stops*," 2021 7th International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS), Heraklion, Greece, 2021, pp. 1-7, doi: 10.1109/MT-ITS49943.2021.9529317.

[2018] [Simulation of Congestion Phenomena and Strategic Passenger Behaviour on Transit Networks](#)
L. M. Bresciani Miristice, D. Menichetti, and G. Gentile (2018) "Simulation of Congestion Phenomena and Strategic Passenger Behaviour on Transit Networks", *Transport and Telecommunication Journal*, 2018, vol. 19, no. 2, pp. 77-92, doi: 10.2478/ttj-2018-0007.

PROJECTS

DUT2023 - SmartUrbanity

SmartUrbanity aims to revolutionize urban planning by enhancing accessibility, inclusivity, security, and navigability through a **citizen-centric digital framework**. This initiative seeks to dismantle barriers to active, proximity-based living by integrating citizens into the planning process and facilitating the transformation into 15-minute cities. The proposed approach advances beyond models like GOAT and WeCount, using up-to-date granular data and sophisticated methodologies such as machine learning algorithms and agent-based simulations. It includes: 1) **Citizen Engagement App** for gathering data and fostering community engagement; 2) **Accessibility Analysis Platform** for sharing data-driven insights and building a vision for sustainable living; 3) **Decision Support System Platform** providing data-driven insights for informed, collaborative policymaking; and 4) **Gamification Strategies** designed to boost citizen participation by making the engagement process more appealing and interactive.

With pilot testing scheduled in **Rome, Karlsruhe, İzmir, Lyon Metropolitan Area, and Greater Zurich Area**, SmartUrbanity aims to refine Sustainable Urban Mobility Indicators, focusing on accessibility, emissions reduction, inclusivity, and satisfaction. It promotes collaboration among citizens, decision-makers, SMEs, and academia to set new standards for urban life quality, **advocating for a sustainable, community-focused future**. Envisioning cities that adapt to residents' needs, SmartUrbanity is poised to set new benchmarks for urban living and model future developments.