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Lory Michelle Bresciani Miristice

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Nationality: Italian

ABOUT ME

Lory Bresciani is a dedicated software developer and transportation optimization professional with a passion for creating sustainable and efficient mobility solutions. Eager to reduce congestion and improve performance in public and freight transport, Lory has gained valuable experience in research and development at PTV SISTeMA, where she focused on software optimization, traffic control solutions, and customer support.

In her work as a consultant for Moving Projects and Movesion, Lory has expanded her skills in cloud computing, project management, and client relations. She has contributed to the design and implementation of innovative logistics solutions that have helped businesses improve their efficiency. Lory's technical knowledge, which includes expertise in C#, .Net, Java, SQL, Python, Firebase, and the Microsoft Azure platform, complements her role as a solution consultant, where she oversees project design, planning, and execution.

Currently pursuing a PhD in Transportation and Infrastructures at the Sapienza University of Rome, Lory's research focuses on dynamic simulation and real-time management of transit systems, enhancing her understanding of Mobility as a Service. Her educational background, which includes a Diploma in Electronic and Telecommunications, a Bachelor's Degree in Civil Engineering, and a Master's Degree in Transport System Engineering, supports her growing expertise in the field.

As a volunteer member of Bike4City's executive committee, Lory is an advocate for sustainable mobility. She leads fundraising efforts and promotes bicycle usage for a cleaner, healthier urban environment. Lory's problem-solving skills, leadership qualities, and ability to work effectively in teams make her a valuable contributor to any project. She is committed to optimizing transportation and building a more sustainable future for all.

Lory's passion for applied research and desire to make a real-world impact on the transportation industry guide her career aspirations. She looks forward to continuing her research in an applied research field, collaborating with like-minded individuals and innovative companies to bring about positive change in transportation and mobility.

WORK EXPERIENCE

[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.

[09/2022 – 02/2023]

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.

[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 Movesion 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 Movesion 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.

[10/2019 – Current]

Volunteer

Bike4City ASP

City: Rome
Country: Italy
As a dedicated volunteer and executive committee member at Bike4City since 2020, I have been wholeheartedly committed to the organization's mission of promoting sustainable mobility in urban areas. Our focus lies in encouraging bicycle usage as an alternative to private motorized vehicles, ultimately improving road safety, reducing traffic congestion, and enhancing air quality.

A central initiative of Bike4City is the establishment of a self-managed bike workshop that restores and recycles discarded bicycles, making them accessible to those in need. In my role, I have spearheaded fundraising efforts, organizing events and crafting handmade gadgets from recycled bike parts.

To achieve our objectives, I have managed a team of 10 volunteers, established deadlines and processes, monitored orders and materials, and ensured the success of our fundraising initiatives. Furthermore, I organized a bike mechanics course, carefully selecting instructors and overseeing the program's effective implementation.

My involvement with Bike4City has been an immensely gratifying experience, enabling me to apply my leadership, project management, and fundraising skills towards creating a positive impact on sustainable urban mobility.

[06/2017 – 01/2019]

Intership 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 – 01/2023]

PhD Candidate in Transportation and Infrastructures

Sapienza Università di Roma

Address: Rome, Italy

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

Address: Rome, 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

Univeristà degli Studi di Brescia

Address: Brescia, 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

Address: Brescia, 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

Programming Languages

C# | javascript | HTML

Cloud Technologies

Azure | Firebase

Data Visualization and Geospatial Analysis

deck.gl | Open Street Map

Others

GIT | PTV Visum | Microsoft Office | PostresSQL

PUBLICATIONS

[2018]

Simulation of Congestion Phenomena and Strategic Passenger Behaviour on Transit Networks

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

[2021]

The Hyper Run Assignment Model: simulation on a diachronic graph of congested transit networks with fail-to-board probabilities at stops

1.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.

[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, June 2023, accepted for publication in scopus-indexed IEEE Xplore Digital Library conference proceedings.

[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*", June 2023 8th International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS), Nice, France, 2023, accepted for publication in scopus-indexed IEEE Xplore Digital Library conference proceedings.

[2023]

Inferring Station Numbers in Metro Trips Using Mobile Magnetometer Sensor via an Unsupervised K-means Clustering Algorithm

S. 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, June 2023, accepted for publication in scopus-indexed IEEE Xplore Digital Library conference proceedings.