Luis Guillermo Natera Orozco

Data Analyst

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Motivated, interdisciplinarity team-work oriented, and responsible Data Analyst with significant experience working in urban mobility and data analysis. Highly educated, Ph.D. in Network Science from the Central European University, where I developed new data methods for the analysis of large-scale urban mobility network data, along with the designing of new algorithms to quantify urban liveability and connectivity improvement for bicycle infrastructure networks.

I am interested in data analysis as an engine to improve the world, and face the future challenges that we will face as humanity such as climate change, increased connectivity, and pollution.

TECHNICAL SKILLS

Data management

PostgreSQL, PostGIS, Data Analysis, Pattern & Trend Identification, Data Visualization, Data wrangling with Python

Computational tools

Python (+5 years experience), Jupyter Notebooks & Jupyter Lab stack, GeoPython stack (GeoPandas, MovingPandas, Kepler, H3, OSMnx, Google Maps API), Sci-kit learn, Django (intermediate), HTML (intermediate), CSS (intermediate), Javascript (beginner), SQL (intermediate), LaTeX(intermediate), Git + {GitHub, GitLab, Bitbucket}, Ci/Cd, AWS (RDS, S3, EC2), Tableau (intermediate)

Research methods

Urban planning, Network & Data science research methodologies, Data mining, Statistical analysis

WORK EXPERIENCE

SYSTEMIQ

Associate / Python modeler
12/2021 -

Steel decarbonization

Python modeler. Retrofit existing Python code into a Python library.

Agglomeration and Social Networks Research Lab

Research fellow
07/2021 - 11/2021

Urban mobility and COVID-19

Data analyst. Analyzed GPS mobility data to provide insights regarding the impact of COVID-19 in the urban mobility of Budapest.

Cities Observatory (ITESM)

Data and network science consultant
05/2020 - 11/2021

Accesibility and mobility analysis

Project manager & Data analyst. Coordinate with the data science team the development of a methodology to measure urban accessibility in 75 Mexican cities using open data. The findings are currently being used to lobby local governments to improve the urban conditions.

Air quality during COVID-19 pandemic lockdown

Project manager. Coordinated a team of researchers to design and develop a methodology to measure the changes in air quality for the cities of Mexico City, Guadalajara, and Monterrey during the COVID-19 lockdowns.

LAC_analytics

Co-founder
01/2020 - 11/2021

City Intelligence

Project manager & Developer. Coordinated the development of a data-driven web platform and API for the analysis of cities and amenities. Some applications of the platform and the data are: location intelligence for real estate, traffic, and public transport, and the analysis of the urban mobility of the city.

Evaluation of air quality and urban environment

Data analyst. Analysis and data visualization for air quality data in the area where a new public transport system is being built. This project was a collaboration within multiple actors, including Google.org, and the Government of Jalisco.

Central European University

Ph.D. Researcher
08/2017 - 11/2021

Multimodal Fingerprint of Urban Transportation Networks

Data scientist & analyst. Development of computational methods for the analysis of urban form in multiple cities. The methods were used to identify patterns in urban mobility infrastructure, and to provide insight on the future of the cities.

Bicycle infrastructure network analysis

Data scientist & analyst. Research and design of algorithms to evaluate and improve the connectivity of bicycle infrastructure networks. The algorithms where applied to fifteen different cities in the world, and the results were published in the journal Royal Society Open Science.

Quantifying life quality as walkability

Data scientist & analyst. Analysis of pedestrian urban accesibility metrics to quantify the liveability of a given city. The project was developed for the Budapest municiaplity as part of a strategy to dectect oportunities around the city and to develop data-driven public policies.

Signa_Lab

Executive Coordinator
08/2016 - 08/2017

Online social networks analysis

Project manager & Data analyst. I coordinated the research and development of methodologies to analyze social media data (Twitter, Facebook, and Youtube) to identify patterns and trends in online political conversation.

Mesura

Networks Analyst
10/2015 - 08/2017

Online social networks analysis

Data analyst. Worked with multinational clients to analyze and improve their social media presence. I developed tools to automatize the data collection with the use of APIs.

IMTJ (Mobility Institute of the State of Jalisco)

Analyst
1/2014 - 10/2014

Sustainable urban mobility

Public policy analyst Worked with a team of urban and mobility planners to develop the public policies and technical specifications for the operation of the first bike share system in Guadalajara, Jalisco. México.

Colectivo Triciclo

Co-Founder, Principal Architect
8/2010 - 1/2014

Architecture and urban design

Architect. Co-founder of my own architecture studio. I was responsible for the design of private houses and the development of urban interventions, such as a pop-up neighborhood reading kiosk.

OTHER WORK EXPERIENCE

Teaching

07/2017 - 09/2021

Python for Social Scientist

I have taught introductory Python courses for social scientists in multiple places, such as Leibniz Institute for the Social Sciences, European Consortium of Political Research, and the Central European University.

Introduction to Network Science

I have deveolped and taught introduction courses to Network Science for non-technical people in interdiscipliary settings. Such courses were developed to facilitate the understanding of complex systems in a friendly and interactive way.

EDUCATION

Ph.D.   Network Science, Central European University, Budapest, Hungary. 2021

M.A.   Communication of Science and Culture, ITESO, Tlaquepaque, Mexico. 2015
          Academic Visit. Center for Civic Media, MIT Media Lab, Boston, USA. 2015

B.Arch.   Architecture, ITESO, Tlaquepaque, Mexico. 2010
          Academic Visit. Universidad de Valparaíso, Valparíso, Chile. 2012

AWARDS

2020   Award for Advanced Doctoral Students. Central European University

2019   Best lighting talk award. International Conference in Complex Networks and their Applications.

LANGUAGES

Spanish   Native

English   Professional proficiency

Updated January 2022

APPENDIX

ACADEMIC PUBLICATIONS

2020   Natera Orozco, L. G., Battiston, F., Iñiguez, G., Szell, M. "Data-driven strategies for optimal bicycle network growth" *Royal Society Open Science*, 2020. 7: 201130. `https://doi.org/10.1098/rsos.201130`

2020   Natera Orozco, L.G., Battiston, F., Iñiguez, G., Szell, M. "Extracting the multimodal fingerprint of urban transportation networks" *Transport Findings*, 2020. `https://doi.org/10.32866/001c.13171`

2019   Natera Orozco, L. G., Deritei, D., Vancso, A., Vasarhelyi, O. "Quantifying life quality as walkability on urban networks" In: Cherifi H., Gaito S., Mendes J., Moro E., Rocha L. (eds) *Complex Networks and Their Applications VIII. COMPLEX NETWORKS 2019. Studies in Computational Intelligence*, 2019, pp. 905–918.

2019   Natera Orozco, L. G. "Un cambio de la comunicación gubernamental y política. De los medios de comunicación a las redes sociales." *Informe Anual Q Medios 2018*, edited by Bernal, G. Jalisco, Mexico: ITESO.

2018   Natera Orozco, L. G., Reguillo, R. "Comunicación y cambio social: participación política e internet en Jalisco" *Enciclopedia Jaliscience de la Comunicación.*, edited by Orozco, G., Reguillo, R. Jalisco, Mexico: Universidad de Guadalajara.

2016   Natera Orozco, L. G., (as Signa_Lab) "Battle of the hashtags: Mapping the online conversation surrounding Mexico's gas price" *Global Voices.*

2014   Natera Orozco, L. G. "Comunicación, ciudad e internet: flujos de información urbana en entornos digitales" VI Seminatio Internacional de Investigación en Urbanismo. Bogota, Colombia.

Manuscripts in Preparation and Development

2022   Natera Orozco, L. G., Alessandretti, L., Szell, M., Battiston, F. "Multimodal transportation and mobility in urban networks" Under review at *Transportation*

2022   Tupikina, L., Natera Orozco, L. G., Battiston, F. "A comparative analysis of station and dockless bike share systems."

CONFERENCE AND INVITED TALKS

2021   *Invited talk:* Bauhaus-Universität Weimar, Germany.

2021   *Invited talk:* URBANUM. Budapest, Hungary.

2021   *Invited talk:* Graph data science. Manning Publications.

2020   *Invited talk:* Science, Technology and Innovation Council. Hidalgo, Mexico.

2020   *Invited talk:* Neo Urban Networks Workshop. Paris, France.

2020   *Invited talk:* PIP Ciudad Futuro. Guadalajara, Mexico.

2019	*Conference:* VIII Conference in Complex Networks and their Applications. Lisbon, Portugal.
2019	*Invited talk:* Data Science MeetUp. Timisoara, Romania.
2019	*Invited talk:* FabLab, West University of Timisoara. Timisoara, Romania.
2019	*Conference:* Cycling Research Board Meeting. Delft, Netherlands.
2019	*Invited talk:* 4D Cities, Multi-Actor Systems Department, TU Delft. Delft, Netherlands.
2019	*Invited talk:* Mobile and Social Computing Lab, Fondazione Bruno Kessler. Trento, Italy.
2019	*Conference:* The Network Science Society Conference. Burlington, USA.
2019	*Invited talk:* ANET-Talks, ANET Lab, Hungarian Academy of Science. Budapest, Hungary.
2018	*Invited talk:* Signa_Lab, ITESO. Tlaquepaque, Mexico.
2018	*Conference:* SICC Workshop ComplexCity@PoliTo. Turin, Italy.
2015	*Invited talk:* Encuentro de Urbanismo Alternativo, Centro Cultural de España en México. Mexico City, Mexico.
2015	*Invited talk:* II Simposio de ciudades y territorios incluyentes "Derecho a la Ciudad", Universidad Autónoma de Yucatán. Merida, Mexico.
2013	*Conference:* Future of Places. Stockholm, Sweden.

GRANTS AND FELLOWSHIPS

2020, 21	Write-up grant. Central European University
2019	Registration grant. International Conference in Complex Networks and their Applications
2019	Ph.D. conference travel grant. CEU Budapest Foundation
2019	Registration grant. NetSci
2018, 19	Travel grant. Department of Network and Data Science, Central European University
2017–20	Doctoral grant. Central European University.
2015	Academic Stay at MIT. Mexican National Council of Science and Technology
2013	Master Studies Grant. Mexican National Council of Science and Technology

DETAILED TEACHING EXPERIENCE

GESIS – Leibniz Institute for the Social Sciences

2021	Introduction to Computation Social Sciences with Python. GESIS Fall Seminar in Computational Social Science. Co-taught with Orsyola Vásárhelyi

European Consortium for Political Research

2021	Teaching Assistant, Python Programming for Social Scientists. Summer Virtual Methods School 2021

2021	Teaching Assistant, Python Programming for Social Scientists. Winter Virtual Methods School 2021
2020	Teaching Assistant, Python Programming for Social Scientists. Summer Virtual Methods School 2020

Central European University

2020	Teaching Assistant, Scientific Python
2019	Teaching Assistant, Statistical Methods in Network Science

ITESO

2019	Network Science (Summer 2019) Invited lecturer, co-taught with Diego Arredondo (ITESO)
2017	Network Science (Summer 2017) Co-taught with Emma Towlson (Northeastern University), Sean P. Cornelius (Northeastern University), and Ricardo Zavala (ITESO)
2015–17	Communication, Culture and Society (Spring 2016, 2017)
2015–16	Social Systems Theory (Fall 2015, 2016)