

# Luis Guillermo Natera Orozco, Ph.D.

## Software Developer.

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Passionate and interdisciplinary Software Developer with a Ph.D. in Network Science from Central European University, specializing in geospatial data analysis and complex network systems. With extensive experience across academic, industry, and governmental sectors, I have developed innovative software solutions and digital platforms to address global challenges in sustainability, urban planning, and environmental monitoring. My expertise spans the development of Python-based algorithms for geospatial analysis, air pollutant monitoring, and accessibility evaluation. I am driven by the potential of technology to create impactful solutions for both businesses and society.

### Technical skills

#### Computational tools

Python (+5 years experience)

Web Development

Django

FastAPI

HTMX

GeoSpatial Analysis

GeoPandas

MovingPandas

H3

OSMnx

Google Maps API

Data Management

PostgreSQL

PostGIS

Pandas

#### Other Technical Skills

Research Methods

Urban Planning

Network Science

Data Mining

### Most Recent Work Experience

2023 -

#### Software Engineer, AerLabs

Non-CO2 MRV European Commission.

Technical lead for a FastAPI-based data collection and storage platform for the European Commission (DG-CLIMA).

Stakeholder management (Airlines, EUROCONTROL, DG-CLIMA) to align on interests, design of the technical solution, and implementation.

MRV schedule to go live in 2025, collecting data of all commercial European flights.

CAELUS, Dutch Ministry of Infrastructure and Water Management.

Tech lead for the implementation of Echo Environmental Management platform.

Facilitator between the client (non technical team), and the development team.

Backend (FastAPI) developer for custom processes and business implementation.

	2021 – 2023	<b>Associate, Software Developer, SYSTEMIQ PlasticIQ</b> Django Developer. Developed a SPA serious-game with Django and HTMX. App is currently being used globally by Walmart foundation associates  <b>Steel and aluminium decarbonization strategy.</b> Developed and maintained a python module to generate decarbonization simulations. Core developer for main module powering decarbonization simulations for aluminium, chemicals, concrete and cement, and ammonia.
	2021 – 2021	<b>Research fellow, Agglomeration and Social Networks Research Lab Urban mobility and COVID-19.</b> GeoPandas-based analysis of GPS mobility data. Co-developed the research methodology to understand the impact of urban mobility in the spread of COVID-19 in Budapest.
	2021 – 2023	<b>Data and network science consultant, Cities Observatory (ITESM) Accessibility and mobility analysis</b> Developed a methodology to measure urban accessibility in 75 Mexican cities using open data. Implemented python-based algorithms to measure urban accessibility. The findings are currently being used by national decision makers to plan better social housing.  <b>Air quality during COVID-19 pandemic lockdown</b> Coordinated the development of a methodology to measure changes in air quality for Mexican cities during the COVID-19 lockdowns. Data analysis and results interpretation.
Education	2021	<b>Ph.D. Central European University, Budapest, Hungary.</b> Network Science.
	2015	<b>M.A. ITESO, Tlaquepaque, Mexico.</b> Communication of Science and Culture.
	2015	<b>Academic Visit, MIT Media Lab.</b> Center for Civic Media.
	2010	<b>B.Arch. ITESO, Tlaquepaque, Mexico.</b> Architecture.
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) French (basic)