

Gerardo Ezequiel Martín Carreño

Making hidden urban systems legible, from heat and material flows to the lived experience conventional maps leave out.

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RESEARCH INTERESTS

Environmental scientist, spatial data scientist and full-stack engineer researching how cities concentrate heat, circulate materials and shape lived experience. I combine remote sensing, urban morphology, machine learning and interactive mapping with environmental-systems training across three master’s degrees. My UCL research modelled urban heat across six European cities; earlier work examined urban metabolism, circularity and spatial planning. I turn complex evidence into tools that researchers, planners and communities can interrogate, while a parallel critical-cartographic practice asks what conventional urban datasets omit.

EXPERIENCE

Professional experience

2026–present	Chief Technology Officer (Designate) CommunityAI, London Set the technology and data direction for an early-stage, privacy-safe community-intelligence proof of concept. Led an open-data rebuild with spatial validation, provenance, licence governance and reproducible release controls.
Sep 2023–May 2026	Full-Stack Spatial Data Scientist TJX Europe, London Delivered geospatial analysis for European markets and built cloud-native workflows connecting loyalty, footfall and demographic evidence.
Feb 2022–Feb 2023	Researcher and Spatial Data Analyst Metabolism of Cities · Horizon 2020 CityLoops, from London Co-developed and co-authored CityLoops’ Urban Circularity Assessment method, adapting Eurostat economy-wide material-flow analysis to city scale for the Closing the Loop for Urban Material Flows project. Supported application across five pilots, built Sankey and CARTO outputs, and managed two analysts.
Jan 2020–Feb 2023	Freelance Spatial Data Analyst Ecotopia Urbana · Canary Islands and Catalonia Delivered freelance urban-sustainability consulting, municipal energy and emissions analysis, and spatial evidence for the Urban Agenda for the Canary Islands, alongside later research roles.
Mar 2021–Feb 2022	Spatial Data Scientist (Intern), then Junior Researcher Metabolic · Horizon 2020 CENTRINNO, Amsterdam and London Intern from March to September 2021, then Junior Researcher from October 2021 to February 2022. Co-authored CENTRINNO’s Cartography Alpha Version for nine European pilots; modelled EU27 building stocks and flows across 144 typologies for European Commission JRC study JRC130992; and trained a Sentinel-1/LUCAS land-use classifier in Google Earth Engine for an EEA-commissioned project.
Jun 2019–Jan 2020	Spatial Data Analyst (Intern) BCNecologia, Barcelona’s urban ecology agency Developed a spatial allocation model for Barcelona’s home-care service within the Superilles Socials programme, combining service demand, neighbourhood indicators and the superblock grid.

Research outputs

2024–present	2020
Shaping Cool Cities	Social superblocks: from urban form to care delivery
Research output · UCL MSc thesis and ongoing public research	Research output · Double-master thesis, Universitat Politècnica de Catalunya · Supervisors: Josep Mercadé Aloy and Albert Cuchí Burgos
Combines thermal satellite data, 3D urban form, street networks and street-level computer vision across six European cities at 30 metre resolution, with validation in 600 metre spatial blocks.	Developed a genetic-algorithm method for contiguous home-care service zones in Barcelona, evaluated against demand, compactness and neighbourhood indicators.
Project case	Project case
Code and methods	Thesis record

SELECTED PROJECTS

Selected research projects

2022–2023	2021–2022
CityLoops: Urban Circularity Assessment	CENTRINNO: Urban Ecosystem Cartography
Co-author · Horizon 2020 grant 821033	Co-author · Horizon 2020 grant 869595
Co-authored a city-scale material-flow and stock method with 18 indicators, designed for facilitated application in five pilots.	Co-authored a nine-pilot cartography combining geospatial context, community and material-flow mapping.
Project case	Project case
D4.4 method PDF	D2.2 cartography PDF

EDUCATION

Education and training

2022–2024	2023 · attended three days
MSc Urban Spatial Science	Summer school: Decarbonising Cities and the Social Cost of Climate Change
Centre for Advanced Spatial Analysis, The Bartlett, UCL · Distinction	MIT Senseable City Lab with AMS Institute, Amsterdam
	Attended as a student for three days; completed course exercises in sensor deployment, mobile air-quality data collection and interactive web mapping.
Jul 2021	2020
Summer school: The Circular City – Towards a Sustainable Urban Ecosystem	Software Engineering Immersive
University of Amsterdam	General Assembly
Studied circular cities through applied research, industrial and urban ecology, consultancy, technological innovation and urban planning.	480-hour full-stack engineering programme.
2018–2019	2017–2019
MSc Sustainable Intervention in the Built Environment (MISMeC)	MSc Sustainability Science and Technology
Vallès School of Architecture, Universitat Politècnica de Catalunya	University Research Institute for Sustainability Science and Technologies, Universitat Politècnica de Catalunya
Urban and architectural approaches to sustainable transformation, including urban metabolic flows of energy, water and materials.	Interdisciplinary sustainability science and technology; graduated 8.29/10 on the Spanish scale.
2013–2017	
BSc Environmental Sciences	
Faculty of Sciences, University of Granada	

CAPABILITIES

Technical and research practice

Spatial and environmental analysis	Research software	Critical spatial practice
Python, SQL, PostGIS, remote sensing, GeoAI, spatial validation, urban metabolism and climate adaptation.	TypeScript, React, Next.js, MapLibre, APIs, interactive maps and reproducible public evidence.	Walking methods, critical cartography, sound, situated interfaces and practice-based research.

SELECTED TALKS AND CONVERSATIONS

Mar 2026	Adapting Cities with AI	May 2025	From location analysis to full-stack spatial data science
	Academy alumni panellist · Urban AI Conversation #49		Speaker · Spatial Data Science Conference, Royal Geographical Society