SELECTED WORKS · PORTFOLIO · INDUSTRY · 2026

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Spatial-data systems, engineered to a research standard of reproducibility.

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3 CASE STUDIES

CASE · EVIDENCE · CLAIM BOUNDARY

SCREEN AND A4 EDITION

A01

LEADERSHIP / PRODUCT · 2026–PRESENT · CURRENT ENGAGEMENT

COMMUNITYAI

Open-data architecture, spatial validation and governed release controls for area-level evidence.

Technology and data direction for an early-stage community-intelligence venture, turning public, area-level evidence into a privacy-safe and auditable product without representing model signals as client outcomes.

ROLE

Chief Technology Officer (Designate)

SCALE

Organisation and platform

CAPABILITIES

Solution architecture, Data architecture, GeoAI, Delivery leadership

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→ Appointment as CTO-designate following a technical audit and a staged platform roadmap.

→ An open-data evidence architecture with traceable dataset, processing and model provenance.

→ A validation framework that uses spatial holdouts, baseline comparisons and explicit claim boundaries rather than inflated random-split scores.

→ Governed release controls separating research evidence, product-ready outputs and client-specific validation.

> **Claim boundary:** This case records my current technical mandate, not ownership of the venture or proof of a client outcome. Detailed architecture, counterparties, internal findings and model results are withheld pending written approval. The work is predictive and decision-supporting, not a causal claim.

CASE STUDY Read on gerardoezequiel.xyz

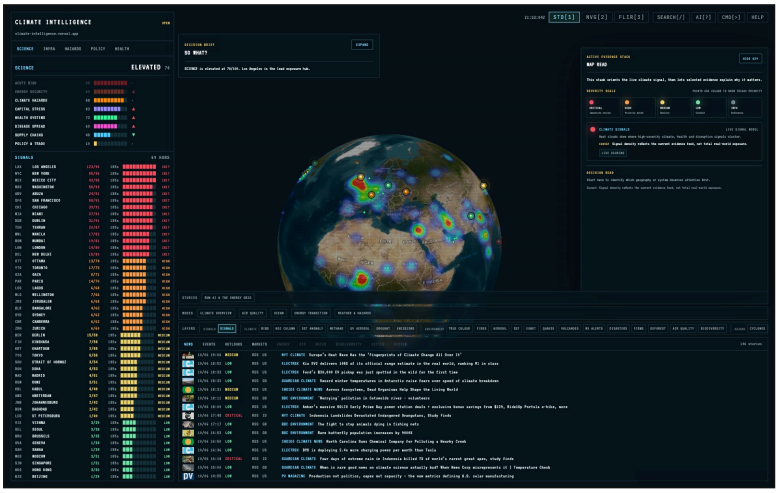
A02

PRODUCT / RESEARCH · 2026–PRESENT · PROTOTYPE

CLIMATE INTELLIGENCE

Keyless climate-exposure prototype served through an API and read-only agent tools.

An open, keyless climate instrument: hand it any coordinate on Earth and it returns a sourced, multi-hazard exposure profile with a live satellite view, then hands the whole engine to AI agents.



ROLE

Founder and full-stack developer

SCALE

Global, any coordinate

CAPABILITIES

Climate-risk modelling, Geospatial engineering, Open data, AI agents (MCP)

- → A per-location Climate Exposure Profile with a dominant hazard, confidence value, heat outlook and per-hazard provenance, served through a read-only endpoint.
- → A live Sentinel-2 preview through keyless STAC, plus a deterministic report generated without an LLM or per-request model spend.
- → An authenticated, read-only MCP surface allowing agents to call the same inspectable climate functions.
- → A broad regression suite and an explicit source catalogue recording each feed's provenance and licence tier.

> **Claim boundary:** This is hazard and exposure screening, not loss modelling. The per-location engine and read-only agent tools are usable; the global-monitoring layer is still being hardened, and riverine flood remains contextual until return-period scoring lands. The work acknowledges its conceptual lineage and does not claim the source concept as my own.

CASE STUDY Read on gerardoezequiel.xyz LIVE WORK Open Climate Intelligence ↗

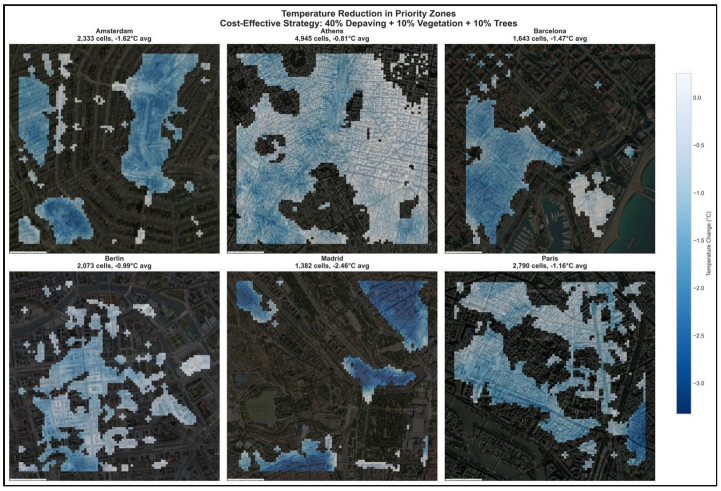
A03

RESEARCH / PRODUCT · 2024–PRESENT · ONGOING RESEARCH

SHAPING COOL CITIES

Reproducible data-fusion pipeline across six European cities at 30 metre resolution.

An urban-heat study fusing Landsat thermal imagery, 3D building morphology, street networks and street-level computer vision across six European cities at 30 metre resolution, from my Bartlett MSc thesis: the model tests how much neighbourhood heat variation these sources explain together and where their relationships differ by city.



ROLE

Researcher and developer

SCALE

Six European cities

CAPABILITIES

Climate analytics, GeoAI, Data fusion, Urban research

→ A six-city comparative study of Amsterdam, Athens, Barcelona, Berlin, Madrid and Paris at 30 metre resolution, integrating four source families in one reproducible pipeline.

→ Spatial GroupKFold validation with 600 metre blocks, designed to keep neighbouring cells out of opposing train and test folds.

→ SHAP-based interpretation showing that the mix and influence of surface, morphology, network and street-view variables vary by city; attribution is reported as predictive association, not intervention effect.

→ A bounded scenario analysis and vulnerability-weighted priority map, published with the methodology and code so the assumptions and limits can be inspected.

Claim boundary: This is an observational thesis, not a causal intervention study. The candidate radii and scenario bounds were chosen before modelling; the strongest tested de-sealing result occurred at the upper search bound, so it does not establish a non-linear threshold. SHAP importance is not an intervention effect, and the study did not run leave-one-city-out transfer tests or real-world before-and-after validation. The outputs are research hypotheses and screening priorities that require local testing.

CASE STUDY Read on gerardoezequiel.xyz REPOSITORY Code and methods ↗