

AI-based Geo-Urban Indexing: An Innovative Tool for Monitoring and Developing Urban Environments at the Intersection of Geo-Urban Studies and Data Science

Modern city monitoring is largely based on structural approaches, particularly on data analysis by administrative units or other defined areas, which limits the understanding of the city as a single integrated space. In my presentation, I propose a new approach to urban development monitoring that perceives the city as an integrated, indivisible space, allowing for the assessment of impact at any point in the space on all other points.

The key elements of this approach are:

- the use of LLM and other modern AI solutions and statistical methods for processing geographic data;
- engaging residents in the decision-making process, considering their priorities and influence on development indices;
- creating interactive live monitoring maps that provide up-to-date information and enable city authorities to comprehensively evaluate the consequences of each decision.

My objectives include:

- modeling urban space saturation zones using AI models and statistical methods;
- determining indices in these zones using LLM;
- creating innovative interactive corrective maps.

I will also address the challenges of implementing this approach and present examples of practical solutions. For instance, I will illustrate how to use zones of nighttime economic activity saturation, obtained from clustering nightlight satellite images, to create indices that help identify optimal locations for public transport stops or green spaces to maximize the improvement of citizens' quality of life.