LECTURE SUMMARY

URBAN MAPPING: SENSING PUBLIC SPACES

EXPECTED LEARNING OUTCOMES

- Define Spatial Analytics and understand its significance in various domains.
- Explore the workflow of Spatial Analytics and its applications in different contexts.
- Learn about Sensing Public Spaces and how quantitative urban studies play a role in urban planning and analysis.
- Understand the history and applications of Urban Datasets, and their importance in urban research.
- Examine how computer vision models can sense public spaces both quantitatively and qualitatively.
- Gain an overview of the workflow involved in using computer vision models for analyzing public spaces.
- Analyze a Case Study Application involving Urban Mapping in Barcelona, applying the concepts and techniques discussed in the lecture.

SUMMARY OF THE LECTURE

The lecture on Evidence-Based Design and Planning: Predicting effects of design and planning interventions titled Urban Mapping: Sensing Public Spaces, delves into the multifaceted realm of urban analysis, offering a comprehensive exploration of its fundamental concepts and practical applications.

The lecture begins with an introduction of Noumena, the company's practice, services and tools as an overview of market applications for Evidence-based design and Planning, followed by an overview of Spatial Analytics, providing a clear and nuanced definition of this vital field. It emphasizes the intrinsic significance of Spatial Analytics in diverse academic and professional domains. By the end of this segment, students will have a firm grasp of the core concept and its relevance in the contemporary world.

The subsequent portion of the lecture focuses on Quantitative Urban Studies. It highlights the role of quantitative approaches in the analysis of public spaces within urban settings. Through quantitative urban studies, students come to understand how data-driven methodologies underpin urban planning, decision-making, and policy development.

The lecture then explores the historical development of urban datasets, underscoring their role in modern urban research. Students will gain insights into the value of these datasets and their application in empirical urban studies.

One of the lecturer's central inquiries centers on the application of computer vision models in sensing public spaces, both quantitatively and qualitatively. The lecture not only addresses the capabilities of these models but also provides a comprehensive overview of the workflow involved in deploying them for urban analysis.
The lecture concludes with a compelling Case Study Application set in the urban landscape of Barcelona. This real-world scenario demonstrates how the concepts and techniques discussed throughout the lecture can be applied to a specific urban context. It offers students a practical, hands-on perspective, enhancing their understanding of Spatial Analytics in action.
In sum, this lecture equips students with a profound understanding of Spatial Analytics and its multifaceted applications in urban research and planning. It concludes with a practical case study, reinforcing the theoretical knowledge and showcasing the tangible impact of Spatial Analytics in real-world scenarios.

REFERENCES

1. Flanders Cushing and Miller (2020). Creating great places. Introduction.
2. Karimi (2012). Evidence-informed and analytical methods in urban design.
3. Hamilton (2020). EBD Vs RID. 4. TWIN2EXPAND virtual training videos - DAY1 morning
5. Sollazzo A., (2023) Sensing Public Spaces, IAAC Bits 10–Learning Cities: Collective Intelligence in Urban Design, 109.

CASE STUDY SUMMARY

Sensing Urban Spaces: The Case Study of Barcelona Superblock

Location: Barcelona, Spain
Date: 2021

SUMMARY DESCRIPTION

In recent years, novel data-driven instruments have emerged, revolutionizing spatial planning by providing innovative approaches to address urban challenges. These cutting-edge techniques leverage computer vision and machine learning algorithms to extract meaningful insights from image analytics. By analyzing non-sensible metrics, these data-driven methodologies aim to inform spatial transformations and estimate CO2 emissions in urban environments. This research presents a comprehensive methodology that encompasses data collection, processing, visualization, and evaluation to promote sustainable urban development.

Methodology:
Data Collection: To facilitate this data-driven approach, video recordings authorized and provided by the urban municipality are collected. These recordings capture the dynamic aspects of the urban environment and serve as valuable input for subsequent analysis.
Data Processing: Employing advanced computer vision and machine learning, algorithms analyze videos to extract key information like spatial dynamics and pedestrian behavior. Data Visualization: Processed data is presented cartographically, aiding historical analysis for understanding past urban strategies and guiding future planning decisions.
Comparative Evaluation: Object detection algorithms are used to identify the most accurate solution, calibrating the analysis process.
Urban Model Evolution: This data-driven approach reshapes urban models, promoting data-rooted city planning. Insights aid planners in creating sustainable strategies for healthier cities.
Conclusion: In conclusion, this data-driven approach to spatial planning, utilizing computer vision and machine learning algorithms, holds immense promise for the future of urban development. By leveraging historical evidence and contemporary data analysis techniques, stakeholders can make informed decisions that foster sustainable urban transformation and heightened environmental awareness. This methodology stands at the forefront of the quest for creating greener, more efficient, and resilient cities for future generations.

LINKS

https://noumena.io/en/works/sensing-public-spaces/