Title: Exploring Street Greenery Distribution to Understand Socio-Economic Situation in Residential and Commercial Areas: A Machine Learning Approach Using Street View and Satellite Imagery.

Abstract:

The study aims to investigate the relationship between street greenery distribution and the socio-economic situation in residential and commercial areas using a machine learning approach. By analyzing street view and satellite imagery data, this research seeks to understand the impact of greenery on urban environments and its potential implications for the socio-economic characteristics of different neighborhoods. The proposed methodology involves several steps, including data collection, preprocessing, feature extraction, model training, and analysis. The results of this study could contribute to urban planning and policy-making efforts, promoting the creation of more equitable and sustainable cities.

1. Introduction:

- Provide an overview of the importance of greenery in urban environments.

- Discuss the potential relationship between street greenery and socio-economic factors.

- State the research objectives and hypotheses.

2. Data Collection:

- Identify the target study area(s) and obtain street view and satellite imagery datasets.

- Ensure data availability and access permissions.

- Collect socio-economic data for the selected study areas, such as income levels, education, crime rates, and property values.

3. Preprocessing:

- Clean and preprocess the street view and satellite imagery data.

- Handle missing or corrupted data.

- Georeference the images to their corresponding locations.

4. Feature Extraction:

- Define relevant features that capture street greenery, such as vegetation coverage, tree density, and green space availability.

- Utilize computer vision techniques to extract features from street view images.

- Extract vegetation indices and other relevant spatial features from satellite imagery.

5. Socio-Economic Data Integration:

- Combine the extracted street greenery features with socio-economic data for each study area.

- Spatially align the datasets to ensure consistency.

6. Model Training:

- Select an appropriate machine learning algorithm(s) for the analysis.

- Split the dataset into training and testing sets.

- Train the model using the training dataset, using street greenery features as input and socio-economic factors as output.

7. Analysis and Evaluation:

- Evaluate the performance of the trained model using appropriate evaluation metrics.

- Conduct statistical analysis to determine the significance of the relationship between street greenery and socio-economic factors.

- Visualize and interpret the results to identify patterns and trends.

8. Discussion:

- Interpret the findings in the context of existing literature.

- Discuss the implications of street greenery distribution on socio-economic situations.

- Highlight the limitations and potential biases of the study.

9. Conclusion:

- Summarize the main findings of the research.

- Discuss the implications for urban planning and policy-making.

- Suggest future research directions and potential improvements to the methodology.

10. References:

- Cite all the relevant sources and studies used in the research.

Note: The specific details and techniques used in each step may vary depending on the available data, software tools, and the researcher's expertise.