Thesis Defense

Computer Science Master's Program

"Performance Enhancement for RUFA: Rapid Urban Forest Assessment"

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Abstract:

Urban forests are crucial to the livability and resilience of cities, offering critical ecosystem benefits such as air quality enhancement, temperature regulation, and biodiversity. Managing said urban forests is essential to ensure their sustainability and adaptability to rapidly changing environmental and climate conditions. The Rapid Urban Forest Assessment (RUFA) tool was developed to address the need for a standardized approach to evaluating and comparing urban and community forestry programs. By analyzing and aggregating tree-specific data across California, such as canopy cover, tree counts, and diversity scores, RUFA assigns a comprehensive urban forestry score for each city. This score allows for normalized comparisons between other cities across the state, within similar climate zones, or even similar population sizes. RUFA empowers stakeholders to identify areas for improvement, guiding efforts to enhance urban forest resilience and sustainability. Additionally, it serves as a critical resource for urban forest management planning and supports grant applications by highlighting specific needs for improvement. This paper details the conception and development of the RUFA tool, its methodological framework, and its implementation, offering insights into its practical applications and potential to inform urban forestry practices across various contexts.

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Committee: Dr. Dekhtyar, Dr. Ventura, Dr. Ritter, Dr. Yost