



Thesis Defense

Computer Science Master's Program

“Developing a Rapid Urban Forest Assessment System for Sustainable City Greenification”

By Daniel Gonzalez

Abstract:

This project introduces an innovative approach to urban forestry management by developing an automated tree assessment system that integrates aerial imagery with urban tree records. The aim is to provide a scalable and highly accurate solution for urban planners, foresters, and environmental agencies to monitor and manage urban green spaces efficiently. The system leverages points extracted from convolutional neural networks (CNNs) combined with inventoried data to enable automated assessments and real-time data integration. The methodology includes evaluating existing technologies, designing, and implementing the proposed system. Key outputs include percentage-based scores for tree density, canopy cover, tree diversity (TD-50), and trees per capita, tailored for census-designated places in California. Additionally, the system's outputs can be augmented with detailed tree metrics to generate comprehensive evaluations of urban forestry. These insights are designed to inform actionable recommendations and metrics for Urban and Community Forestry (U&CF) programs.

Date: Friday, June 12th, 2026

Time: 12:10 PM – 2:00 PM

Location: 14-238b

Committee: Dr. Alex Dekhtyar, Dr. Jonathan Ventura, Dr. Matt Ritter, Dr. Jenn Yost

