



UC Center Sacramento

Planning for Sustainable Cities by Estimating Building Occupancy with Mobile Phones

Wednesday, July 29th

12:00 - 1:00pm

In light of the community concerns regarding COVID-19, this talk will be given as a webinar. The link will be provided on Tuesday, July 28th to those that have registered by 5:00 pm on Monday, July 27th at uccs.ucdavis.edu.

Accurate occupancy is crucial for planning for sustainable buildings. Using massive, passively-collected mobile phone data, we introduce a novel framework to estimate building occupancy at an unprecedented scale. We show that, at urban-scale, occupancy differs widely from current estimates based on building types. For commercial buildings, we find typical occupancy rates are 5 times lower than current assumptions imply, while for residential buildings occupancy rates vary widely by neighborhood. Our mobile phone-based occupancy estimates are integrated with a state-of-the-art urban building energy model to understand their impact on energy use predictions. Results highlight a need for new occupancy-to-load models which can be applied at urban-scale to the diverse set of city building types.



Marta Gonzalez is an Associate Professor of Civil and Environmental Engineering and City and Regional Planning, and Director of the HuMNet Lab at UC Berkeley. She works in the urban science space, with a focus on the intersections between people within social networks and the built and natural environments. Her goal is to design urban solutions through new technologies. To that end, she has developed tools that impact transportation research and discovered novel approaches to model human mobility and the adoption of energy technologies. Her scientific approach is informed by the statistical physics of complex systems and network science. Gonzalez's research includes the application of big data to understanding human network behavior, with applications in transportation networks, energy efficiency planning and characterization of disease proliferation.

Gonzalez was a Scientific Advisory Board member of PTV AG. She was the recipient of a U.N. Foundation award to study consumption patterns of women and girls in the developing world and of a Bill and Melinda Gates Foundation award to study access to financial services in the developing world.

For questions contact Brooke Miller-Jacobs at (916) 445-5161 or bmmillerjacobs@ucdavis.edu

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