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Existing population density measures generally indicate 'nighttime' density, e.g., in the census, location indicates residence where people live at night, failing to capture the significant amounts of time they spend at work, at third places, commuting, and traveling. Furthermore, other indicators from traffic, mobility, and land use models only provide a coarse-grained picture of where people are distributed. In this work, I seek to model population density in urban areas at a higher resolution in both space and time. I plan to bring together spatiotemporal models from different urban areas: for comparison, I will investigate the effectiveness of cell phone data in Nairobi as an indicator of density, in conjunction with population and land use data. In addition, I will apply nonparametric statistical methods to investigate potential population indicators in the United States, focusing on commercial (such as ATMs or Starbucks), social (media, such as Gowalla), and technological (i.e., given by IP addresses) distributions in time and space. The detection of high density and high flux regions at a finer resolution has important implications for their roles as hubs, particularly for their general role in the spread of disease and as potential high-risk targets for attack or system disruption; from this, I wish to contribute to better understanding for policy and urban planning, emergency preparedness and safety, and epidemiology.