Digital tools for communication and information exchange have been ingrained in our lives. We google our information and we skype our parents. We use the Internet to shop for groceries, do banking, and study. We play massively multiplayer online games, belong to online communities, and date online. However, this does not mean that our lives have really moved to the digital domain. Even though the Internet makes it possible to exist without ever leaving the confines of our bedrooms, we still choose to meet our friends in person or to travel through physical, rather than virtual, space. There is a richness to personal contact and direct experience that has not yet been replaced by the digital services. Until this shift happens, we continue to analyze and investigate our offline lives in the pursuit for deepening our understanding of human nature. Digital breadcrumbs, which we leave behind with every online action, are relatively easy to collect. Capturing our offline behaviors, on the other hand, is not trivial. Scientists often rely on data that approximates only one aspect of our lives. For example, mobile operator logs reveal who we call, but not who we meet. An alternative approach is to derive proxies of certain behaviors from smartphone sensor readings. Copenhagen Networks Study (CNS) employs this method, among others, to build the biggest dataset of the kind available to researchers in academia. The thesis shows a path from collecting raw smartphone data for CNS, through extracting increasingly meaningful information, to gaining novel insights into human behavior. Step by step, I turn a cryptic and seemingly uninteresting collection of hardware identifiers and received signal strengths into a detailed record of people’s lives: where they go, who they encounter, who they become friends with. I compare their offline activities and social ties to their online representations and find a surprisingly small overlap. The methods I propose in the thesis constitute a more privacy-aware alternative to currently employed social sensing approaches. I show how to track the mobility and interactions of participants without sharing the results with third parties inadvertently. At the same time, the findings presented in this thesis emphasize the fragility of our privacy: the data we today consider as safe to share today, tomorrow might prove to carry rich information about our lives.