

ASSESSING TIME-VARYING CAUSAL INTERACTIONS AND TREATMENT EFFECTS WITH APPLICATIONS TO **MOBILE HEALTH**



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Mobile devices along with wearable sensors facilitate our ability to deliver supportive treatments anytime and anywhere. Indeed mobile interventions are being developed and employed across a variety of health fields, including to support HIV medication adherence, encourage physical activity and healthier eating as well as to support recovery in addictions. A critical question in the optimisation of mobile health interventions is: “When and in which contexts, is it most useful to deliver treatments to the user?” This question concerns time-varying dynamic moderation by the context (location, stress, time of day, mood, ambient noise, etc.) of the effectiveness of the treatments on user behavior. In this talk we discuss the micro-randomised trial design and associated data analyses for use in assessing moderation. We illustrate this approach with the micro-randomised trial of HeartSteps, a physical activity mobile intervention.

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