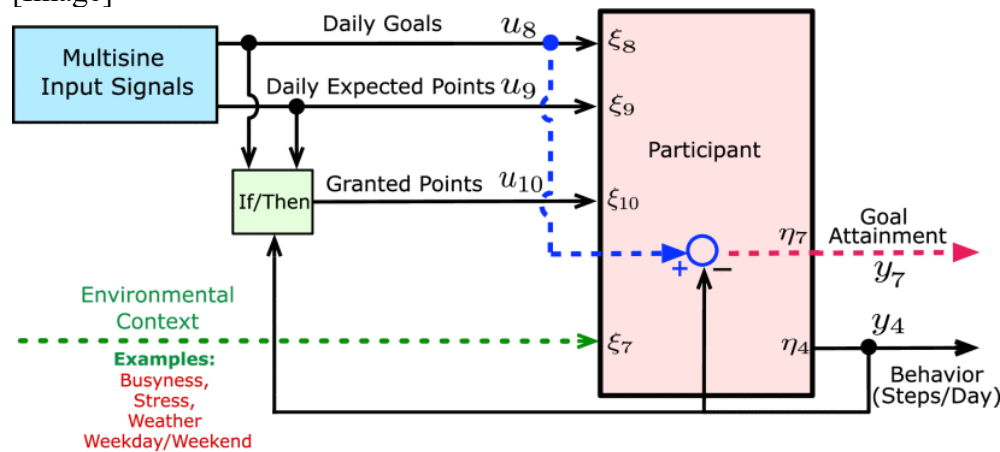


[Title] Data-Driven Mobile Health: System Identification and Hybrid Model Predictive Control to Deliver Personalized Physical Activity Interventions

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[Summary] The integration of control systems principles in behavioral medicine involves developing interventions that can be personalized to foster healthy behaviors, such as meaningful and consistent engagement in physical activity. In this paper, system identification and hybrid model predictive control (HMPC) are applied to design individualized behavioral interventions using a control optimization trial (COT) framework.

[Image]



[Caption] Schematic illustrating the closed-loop physical activity HMPC intervention based on a participant-specific model from Just Walk, an application that promotes walking behavior in sedentary adults.