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Navigating Uncertainties in Project Control: A Predictive Tracking Framework

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Abstract : This study explores a method for the signal-noise separation challenge in project control, focusing on the limitations of traditional deterministic approaches that use single-point performance metrics to predict project outcomes. We detail how traditional methods often overlook future uncertainties, resulting in tracking biases when reliance is placed solely on immediate data without adjustments for predictive accuracy. Our investigation led to the development of the Predictive Tracking Project Control (PTPC) framework, which incorporates network simulation and Bayesian control models to adapt more effectively to project dynamics. The PTPC introduces controlled disturbances to better identify and separate tracking biases from useful predictive signals. We will demonstrate the efficacy of the PTPC with examples, highlighting its potential to enhance real-time project monitoring and decision-making, marking a significant shift towards more accurate project management practices.

Keywords : predictive tracking, project control, signal-noise separation, Bayesian inference
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