Necessary Conditions for Implicit and DAE Control Systems

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Abstract

Necessary conditions for optimal control problems involving implicit control systems and with possible nonsmooth data has been derived under bounded slope conditions in [1]. Here, we investigate how such conditions apply to various particular cases of implicit control systems. In particular, we extend the analysis in [3], where application to some optimal control problems with semi-explicit Differential Algebraic Equations (DAE's) are explored. Note-worthy, we consider DAE's systems with index higher then 1. We go a step further and we extend necessary conditions for mixed constrained problem derived in [3] under interiority conditions and convexity of the velocity sets can to cover implicit control systems.

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References

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