Model Based Control for Insulin Delivery for Type 1 Diabetics via Parametric Programming

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Abstract
This paper presents an advanced model based control technique for regulating the blood glucose in Type 1 diabetic patients based upon novel parametric programming algorithms, developed at Imperial College London. The optimal insulin delivery rate is obtained off-line as an explicit function of the current blood glucose level of the patient. The implementation of the optimal insulin delivery, therefore, requires simple function evaluation and minimal on-line computations. This is expected to simplify the drug delivery mechanism, thereby enhancing the quality of life of the patients.

Keywords: Type 1 Diabetes, Parametric Programming, Model Based Control

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