SEMINARIO

Continuous glucose monitoring sensors in diabetes management: A simulation framework to assess new therapies and possible future applications for personalized treatment and prevention

Continuous glucose monitoring (CGM) sensors were demonstrated to be beneficial for improving glycemic control in type 1 diabetes (T1D). In this talk, I will present a simulation framework usable to develop and assess new CGM-based insulin treatment strategies. The framework is based on the UVA/Padova T1D simulator, a tool implementing a mathematical model of glucose, insulin and glucagon metabolism, which was extended with new modules describing sensor errors and patient's behaviour in making treatment decisions. This framework was successfully used in 2016 to support Dexcom, Inc. (San Diego, CA) in its application at the Food and Drug Administration to receive regulatory approval of nonadjunctive use for the Dexcom G5 Mobile sensor. The framework is presently used in our lab to address several open issues related to CGM-based insulin dosing. I will also comment how the recent approval of nonadjunctive CGM use and the new reimbursement criteria are expected to extend CGM utilization and stimulate new CGM-based applications for personalized diabetes management and prevention.

12 Luglio 2018, ore 14:45

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presso Aula Seminari
ex-Dip- Elettronica (piano D)

Dip. Ing. Industriale e
dell'Informazione

Via Ferrata, 5 – Pavia