Time Delay Models in Biological Systems

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Abstract

In this talk various biological system models involving time delays are reviewed. In particular, human neuromusculo-skeletal system, cell population dynamics in AML, and gene regulatory networks are studied. Different system theoretic methods are used for the analysis of each of these biological application examples. Sufficient conditions for stability of these systems are derived by employing robust control techniques for distributed parameter systems.

Biography

Hitay Özbay is a Professor of Electrical and Electronics Engineering at Bilkent University, Ankara Turkey. He received the B.S. degree from Middle East Technical University (Ankara, Turkey) in 1985, the M.Eng degree from McGill University (Montreal, Canada) in 1987, and the Ph.D. degree from the University of Minnesota, (Minneapolis, USA) in 1989.

His prior academic affiliations include University of Rhode Island (1989-1990), and The Ohio State University (1991—2006) where he was a Professor of Electrical and Computer Engineering prior to joining Bilkent University.

He also held a visiting position at INRIA, France (2009-2010). Professor Özbay served as Associate Editor for many journals, including IEEE Transactions on Automatic Control (1997-1999), SIAM Journal on Control and Optimization (2011-2014), and Automatica (2001-2007 and 2012 - 2019). He was a Vice-Chair of the IFAC Technical Committee on Networked Control Systems (2005-2011); and currently is a Vice-Chair of the IFAC Technical Committee on Linear Control Systems (2017-2020).

He is a member of the Board of Governors of the IEEE Control Systems Society, elected for the term 2017-2019; he is also a General Assembly member of the European Control Association (EUCA), representing Turkey, since 2013. He is a Fellow of IEEE.