International Workshop on Hybrid Systems
Modeling, Simulation and Optimization
May 14-16, 2008
Koç University, Istanbul

Wednesday, May 14
11:00 - 13:00 Registration
13:00 - 13:10 Welcome and Opening Remarks
   – Yaman Arkun, Provost, Koç University
13:10 - 14:30 Session W1
   – “Iterative Relaxation Abstraction for Verification and Design of Hybrid Systems”,
     Bruce H. Krogh, Department of Electrical and Computer Engineering, Carnegie
     Mellon University, Pittsburgh, PA, USA
     Caliskan, N. Gokgoz, Institute of Applied Mathematics, METU, Ankara, Turkey
14:30 - 14:45 Coffee Break
14:45 - 15:45 Session W2
   – “Reformulations, relaxations and cutting planes for generalized disjunctive
     programming”, Nicholas Sawaya, Ignacio E. Grossmann, Department of Chemical
     Engineering, Carnegie Mellon University, Pittsburgh, PA, USA
15:45 - 16:00 Coffee Break
16:00 - 17:30 Session W3
   – “Multi-Dimensional Particle Swarm Optimization”, Serkan Kiranyaz¹, Turker Ince²,
     Alper Yildirim³, Moncef Gabbouj¹, ¹Tampere University of Technology, Tampere,
     Finland, ²Izmir Economy University, Izmir, Turkey, ³TUBITAK, Ankara, Turkey
   – “Modeling Hybrid Systems using Constraint Logic Programming”, Ammar
     Mohammed, Computer Science Department, Koblenz-Landau University,
     Universitaetsstrasse 1, 56070 Koblenz, Germany
   – “Reformulations and Numerical Methods for Control Problems with Integer-Valued
     Functions”, Sebastian Sager, Christian Kirches, Hans Georg Bock, Interdisciplinary
     Center for Scientific Computing (IWR), University of Heidelberg, Germany
Thursday, May 15

09:30 - 11:00 Session T1

– “Time-stepping methods for large scale differential variational inequalities (DVI) in nonsmooth dynamics”, Mihai Anitescu, Mathematics and Computer Science Division, Argonne National Laboratory, USA

11:00 - 11:15 Coffee Break

11:15-12:45 Session T2

– “Analysis and numerical solution of hybrid differential algebraic systems”, Volker Mehrmann, Institut für Mathematik, Technische Universität Berlin, Germany
– “A Switching Control Approach to Stabilization of Parameter Varying Time Delay Systems”, Peng Yan1, Hitay Ozbay2, 1Enterprise Design Engineering, Seagate Technology, 1280 Disc Drive, Shakopee, MN 55379, USA, 2Department of Electrical and Electronics Engineering, Bilkent University, Ankara, 06800, Turkey

12:45-13:30 Lunch Break

13:30 - 15:30 Session T3

– “MPEC Strategies for Optimization of Chemical Process Dynamics”, B. T. Baumrucker, Lorenz T. Biegler, Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA
– “Dynamic Modeling and Optimization of Circadian Clock”, Ugur Kaplan, I.Halil Kavakli, Metin Turkay, College of Engineering, Koc University, Istanbul, Turkey
– “Simulation of Mating Behavior in Flies”, Mehmet Kayım, Aykut Kence, Department of Biology, Middle East Technical University, Ankara, Turkey

15:30 - 15:45 Coffee Break

15:45 - 17:15 Session T4

– “Semismooth Hybrid Automata”, Paul I. Barton, Mehmet Yunt, Chemical Engineering Department, Massachusetts Institute of Technology, Cambridge, MA, USA
“A Model of Angiogenesis by Hybrid Systems with Delay on the Piecewise Constant part”, Bulent Karasozen, Hakan Oktem, Mustafa Kahraman, Department of Mathematics and Institute of Applied Mathematics, METU, Ankara, Turkey

19:00-23:00 Conference Dinner

**Friday, May 16**

09:30 - 11:00 Session F1

—“Constrained and Distributed Hybrid Control”, Francesco Borrelli, Department of Mechanical Engineering, University of California at Berkeley, USA

—“Fuzzy L1 Norm Strategy for Model Based Control”, Zehra ZEYBEK, Ankara University, Department of Chemical Engineering, 06100 Tandoğan, Ankara, Turkey

11:00 - 11:15 Coffee Break

11:15-12:15 Session F2

—“Modeling and Optimal Control for Freeway Onramp Metering Based on the Piecewise Affine System”, Liguo Zhang, School of Electronic and Control Engineering, Beijing University of Technology, Beijing, China

—“A Mode-Based Hybrid Controller Design for Agile Maneuvering Unmanned F-16 Aircraft”, Nazim Kemal Ure, Gokhan Inalhan, Faculty of Aeronautics and Astronautics, Istanbul Technical University, Istanbul, Turkey

12:15-13:00 Lunch Break

13:00 - 14:30 Session F3

—“Differential Variational Inequalities and friends”, David Stewart, Department of Mathematics, University of Iowa, IA, USA

—“Use of Hybrid System Modeling Technique for Robot-Assisted Rehabilitation Systems”, Duygun Erol, Department of Electrical and Electronics Engineering, Yeditepe University, Kayisdagi, Istanbul, Turkey

14:30 - 15:00 Concluding Remarks, Farewell
Sponsors

- TÜBİTAK
- Koç University
- Institute of Applied Mathematics, METU
- Carnegie Mellon University, Department of Chemical Engineering
- KUMPEM
- The European Office of Aerospace Research & Development (EOARD)

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