



Einladung zum Oberseminar Wissenschaftliches Rechnen

Julius-Maximilians-Universität Würzburg
Lehrstuhl für Wissenschaftliches Rechnen IX

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Optimal control of opinion dynamics

The formation of public opinion is a complex phenomenon. Nevertheless, e.g. marketing has as a main goal the manipulation of the public opinion concerning the services of an advertising company. Several theoretic models for the opinion dynamics are known. Here we consider the bounded confidence model where each individual i at a time t has an opinion $y_i^{(t)} \in [0, 1]$. Two individuals i and j influence each other at time t iff $|y_i^{(t)} - y_j^{(t)}| \leq \varepsilon$, where ε is a threshold. The new opinion $x_i^{(t+1)}$ of individual i is given by the arithmetic mean of all opinions $y_j^{(t)}$ where j is influenced by i at time t . In this talk we analyze two situations:

- (1) A company maximizing the number of opinions in a given opinion-interval after a given endtime T by placing some (virtual) opinions $x_i^{(t)}$. Here we give an ILP formulation, a heuristic that performed well in practice, and some first theoretic results.
- (2) A moderator minimizing the convergence time of the opinion formation process by placing some (virtual) opinions $x_i^{(t)}$. Here we give some bounds on the achievable worst-case convergence time.

Ort: Raum 30.02.003 (2. Stock) (Mathegeb. 30 West) Zeit: Mittwoch, 4.02.2015, 14.00 Uhr

Zu diesem Vortrag laden wir Sie herzlich ein.

gez. Prof. Dr. Alfio Borzi
gez. Prof. Dr. Roland Griesmaier