CARL VON OSSIETZKY universität OLDENBURG

Fakultät II *Informatik, Wirtschafts- und Rechtswissenschaften*
Department für Informatik

Kolloquium

Am **Mittwoch,** den **03. Juli 2017,** um **14:00 Uhr** hält

Christoph Peuser
Universität Oldenburg

im Rahmen seiner beabsichtigten Dissertation einen Vortrag mit dem Titel

Graph Transformation Games for Modeling Adverse Conditions

Der Vortrag findet im Raum A02 2-222 (SCARE Raum) statt.

Abstract:

Graph transformation systems are an elegant solution for many modeling problems in computer science. The system state is modeled as a graph and state changes are rule applications that change the graph. The existing correctness notions for graph transformation systems, for example by (Pennemann, 2009) or (Poskitt, 2013) allow proving correctness of a system with respect to given pre- and postconditions.

In this PhD thesis, we will investigate systems under adverse conditions, e.g. systems under the influence of an unpredictable environment. Such systems will frequently allow the intermittent violation of desired properties, as long as these properties can be recovered after some time. We propose to model these systems as games, with the system and its environment as opposing players. The system is correct if it can reestablish the desired properties despite the environments interference, that is, if there is a winning strategy for the system.

The goal of the thesis is the investigation of graph transformation games, i.e. games in which the players moves are applications of graph transformation rules, as a notion of correctness for systems under adverse conditions. We identify a decidable subclass of these graph transformation games, arising from ordered hyperedge replacement grammars. These grammars can be transformed into parity pushdown games, for which there are existing solutions (Walukiewicz, 2001). The results are to be illustrated with the help of case studies, for example a telephone system or a railroad system.

Betreuerin: Prof. Dr. Annegret Habel

Weitere Kolloquiumstermine sind im WWW abrufbar.