

The workshop on Boolean problems has an emphasis on the problems related to the solution of all kinds of high-dimension Boolean and discrete problems, and provides a forum for researchers and engineers from different disciplines to exchange ideas. The workshop is devoted to theoretical discoveries as well as practical applications. An aim of the workshop is to initiate possible collaborative research and to find new areas of application. It is intended to publish the papers in proceedings. The invited speakers

Gerhard Dueck (University of New Brunswick, Canada) and Rolf Drechsler (University of Bremen, Germany), are presenting essential results of their research.

Topics of Interest

Theory

- Properties and applications of Boolean Algebras

Data Structures and Algorithms

- Modeling
- Specification of data structures/algorithms
- Complexity

Program Systems/Software

- Fundamental software for the solution of Boolean Problems
- Utilization of the available cores on both the CPU and GPU for the computations
- Comparison of efficiency

Practical Applications

- Application of Boolean Algebra in analysis, synthesis, and test of circuits
- Quantum logic, reversible logic, and multi-valued logic
- Solution of real-world problems

Program Committee

J. Butler, Naval Postgraduate School Monterey, USA
 R. Berghammer, C-A-University of Kiel, Germany
 L. Cheremisinova, Minsk Academy of Science, Belarus
 D. Debnath, Oakland University, USA
 R. Drechsler, University of Bremen, Germany
 E. Dubrova, Royal Institute of Technology (KTH), Sweden
 G. Dueck, University of New Brunswick, Canada
 V. Gaudet, University of Waterloo, Ontario, Canada
 D. Große, University of Bremen, Germany
 A. Karatkevich, University of Zielona Gora, Poland
 O. Keren, Bar-Ilan University, Israel
 P. Kerntopf, Warsaw University of Technology and University of Lodz, Poland
 I. Levin, Tel Aviv University, Israel
 T. Luba, Warsaw University of Technology, Poland
 M. Lukac, Nazarbayev University, Kazakhstan
 M. Miller, University of Victoria, Canada
 C. Moraga, TU Dortmund, Germany
 M. A. Perkowski, Portland State University, USA
 Y. Pottosin, Minsk Academy of Science, Belarus
 T. Sasao, Meiji University, Japan
 Ch. Scholl, University of Freiburg, Germany
 M. Soeken, EPFL, Switzerland
 R. Stankovic, University of Nis, Serbia
 B. Steinbach, University of Freiburg, Germany
 R. Ubar, Tallinn Technical University, Estonia
 M. Velev, Aries Design Automation, USA
 A. De Vos, University of Gent, Belgium
 R. Wille, University of Bremen, Germany
 S. Yanushkevich, University of Calgary, Canada

Location of the Workshop

Bernhard-von-Cotta Str. 2, 09596 Freiberg, Germany

The **conference office** will be open from 8:00, Thursday, September 22, 2016.

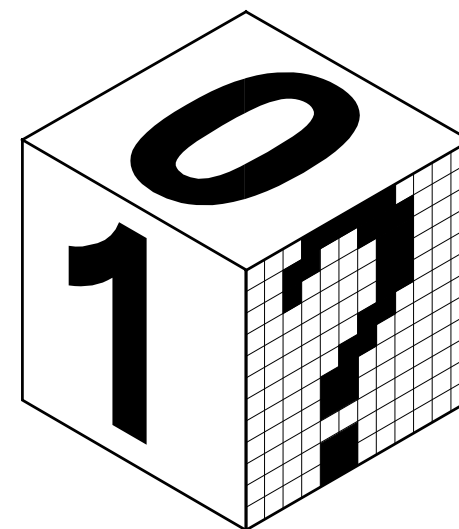


More Information:

http://www.informatik.tu-freiberg.de/prof2/ws_bp12

Freiberg University
of Mining and Technology

12th International Workshop on Boolean Problems



September 22-23, 2016
Freiberg (Sachsen)

Program

Thursday, September 22, 2016

9:00 - 10:00 Invited Talk (Gerhard W. Dueck)

Gerhard W. Dueck (University of New Brunswick, Canada):
Graph Based Template Matching for Reversible Logic Synthesis

10:20 - 12:00 Session 1

Fatima Zohra Hadjam (University of Djillali Liabes, Algeria), Claudio Moraga (TU Dortmund University, Germany):
Distributed RIMEP2: a Comparative Study between a Hierarchical Model and the Islands Model in the context of reversible circuits design

Paweł Kerntopf (University of Łódź, Poland), Claudio Moraga (TU Dortmund University, Germany), Krzysztof Podlaski (University of Łódź, Poland), Radomir S. Stanković (University of Niš, Serbia):
Towards Classification of Reversible Functions with Homogeneous Component Functions

Martin Lukac (Nazarbayev University, Kazakhstan), Claudio Moraga (University of Dortmund, Germany), Michitaka Kameyama (Ishinomaki University, Japan):
The CⁿF logic gates derived from CⁿNOT gates

J. Astola, P. Astola (Tampere University of Technology, Finland), R. S. Stanković (University of Niš, Serbia), I. Tabus (Tampere University of Technology, Finland):
On Linearization of Partially Defined Boolean Functions and its Applications

13:00 - 14:40 Session 2

Jon T. Butler (Naval Postgraduate School Meiji University, Monterey, U.S.A.), Tsutomu Sasao (Meiji University Kawasaki, Kanagawa, Japan):
Analysis of the Number of Variables to Represent Index Generation Functions

Rudolf Berghammer (Kiel University, Germany):
Computing and Visualising Finite Topologies using Relation Algebra and the BDD-based Tool RelView

Radomir S. Stanković (University of Niš, Serbia), Jaakko Astola (Tampere University of Technology, Finland), Claudio Moraga (University of Dortmund, Germany):
Spectral Techniques for Boolean Problems Origins and Applications

Gürkan Uygur, Sebastian M. Sattler (FAU Erlangen-Nuremberg, Germany):
A Real-World Model of Partially Defined Logic

15:00 - 15:50 Session 3

Hila Rabii, Yaara Neumeier and Onat Keren (Bar-Ilan University, Israel):
Low Complexity High Rate Robust Codes Derived from the Quadratic-Sum Code

Oliver Keszocze (University of Bremen, DFKI GmbH Bremen, Germany), Mathias Soeken (EPFL, Lausanne, Switzerland), and Rolf Drechsler (University of Bremen, DFKI GmbH Bremen, Germany):
On the computational complexity of error metrics in approximate computing

16:00 Excursion "The visitor's mine of Freiberg"

19:30 Dinner (location: "Ratskeller Freiberg", Obermarkt 16)

Friday, September 23, 2016

9:00 - 10:00 Invited Talk (Rolf Drechsler)

Rolf Drechsler, Jannis Stoppe (University of Bremen, Germany):
Hardware / Software Co-Visualization: The Lost World

10:20 - 12:00 Session 4

Bernd Steinbach (Freiberg University of Mining and Technology, Germany), Christian Posthof (The University of The West Indies, Trinidad & Tobago):
Vectorial Bi-Decompositions for Lattices of Boolean Functions

Debabani Chowdhury, Debesh K. Das (Jadavpur University, Kolkata, India), Bhargab B. Bhattachary (Indian Statistical Institute, Kolkata, India), and Tsutomu Sasao (Meiji University, Kawasaki, Kanagawa, Japan):
On the Properties of Root-Functions in Logic Circuits

Daniel Rodas Bautista and Emanuel Popovici (University College Cork, Ireland), Bernd Steinbach (Freiberg University of Mining and Technology, Germany):
Study of Synthesis Techniques for Reliability Using Bi-Decompositions

Gürkan Uygur, Sebastian M. Sattler (FAU Erlangen-Nuremberg, Germany):
Boolean Discrete Event Modeling and Composition of Circuit Structures

13:00 - 14:40 Session 5

Jan Schmidt, Petr Fišer (Czech Technical University, Prague, Czech):
A Prudent Approach to Benchmark Collection

A. Bernasconi (Università di Pisa, Italy), R. K. Brayton (University of California, Berkeley, USA), V. Cirianni and G. Trucco (Università degli Studi di Milano, Italy), T. Villa (Università degli Studi di Verona, Italy):
Complemented circuits

Daniela Gorodecky (University of Bologna, Italy):
Multipliers Design Technique Based on Disjunctive Normal Form Minimization and Fourier Transformation

Petr Fišer, Jan Schmidt (Czech Technical University, Prague, Czech):
A Comprehensive Set of Logic Synthesis and Optimization Examples

15:00 - 16:15 Session 6

Stuart W. Schneider Jon T. Butler (Naval Postgraduate School Monterey, U.S.A.):
Bent Function Enumeration by a Circular Pipeline Implemented on an FPGA

Miloš Radmanović (Faculty of Electronic Engineering, Niš, Serbia):
Efficient Random Generation of Bent Functions Using GPU Platform

Yavuz Can, Hassen Kassim, Georg Fischer (Universität Erlangen-Nürnberg, Germany):
Orthogonalization of DNF in TVL-Arithmetic

16:40 - 17:55 Session 7

Matthias Werner, Till Kolditz, Tomas Karnagel, Dirk Habich, Wolfgang Lehner (Technische Universität Dresden, Germany):
Multi-GPU Approximation Methods for Silent Data Corruption of AN Codes

Suzana Stojković, Milena Stanković (University of Niš, Serbia), Claudio Moraga (TU Dortmund University, Germany), Radomir S. Stanković (University of Niš, Serbia):
Procedure for FDD-based reversible synthesis by levels

Christian Posthoff (The University of The West Indies, Trinidad & Tobago), Bernd Steinbach (Freiberg University of Mining and Technology, Germany):
NP-Problems and Boolean Equations

17:55 Closing Session

Conference Language: English

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General Chair

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