

ISMVL 2014

Sunday, May 18th, 2014

18:00 Reception

Monday, May 19th, 2014

8:00-9:00 Registration

8:45-9:00 Opening

9:00-10:00 Invited Talk I (Carsten Lutz): Ontology-Based Data Access: Complexity and Expressive Power | Chair: Rolf Drechsler

10:00-10:30 Coffee Break

10:30-12:30 Session 1a: Logic Design and Switching Functions

Chair: Gerhard Dueck

An Update Method for a CAM Emulator using an LUT Cascade Based on an EVMDD (k)
Hiroki Nakahara, Tsutomu Sasao and Munehiro Matsuura

A Lower Bound on the Number of Variables to Represent Incompletely Specified Index Generation Functions
Tsutomu Sasao, Yuta Urano and Yukihiro Iguchi

On the Number of S-Threshold Functions on not Necessarily Binary Input
Jovanka Pantovic, Silvia Ghilezan and Jovisa Zunic

The Maiorana Method to generate multiple-valued bent functions, revisited
Claudio Moraga, Milena Stankovic, Radomir Stankovic and Suzana Stojkovic

Session 1b: Problem Solvers and Fuzzy Logic

Chair: Alexis De Vos

Multiple-Valued Problem Solvers – Comparison of Several Approaches
Bernard Steinbach and Christian Posthoff

Many-Valued MinSAT Solving
Josep Argelich, Chu-Min Li, Felipe Many and Zhu Zhu

Semantic Games with Backtracking for Fuzzy Logics
Christian Fermüller

Neural Spike Compression Using Feature Extraction and Fuzzy C-Means Codebook
Russell Dodd, Bruce Cockburn and Vincent Gaudet

12:30-14:00 Lunch

14:00-15:30 Session 2a: Algebra and Logic I

Chair: Takahiro Hanyu

Concrete dualities and essential arities
Sebastian Kerkhoff

Maximal and minimal closed classes in multiple-valued logic
Tamás Waldhauser

On relations preserved by a weak near-unanimity function
Dmitriy Zhuk

Session 2b: Hardware Improvement and Exploitation

Chair: Martin Lukac

Design of a Quaternary Single-Ended Current-Mode Circuit for an Energy-Efficient Inter-Chip Asynchronous Communication Link
Akira Mochizuki, Hirokatsu Shirahama and Takahiro Hanyu

Non-binary Successive Approximation in Analog-to-Digital Converters: A Survey
Takao Waho

Constant Geometry Algorithms for Galois Field Expressions and Their Implementation on GPUs
Radomir Stankovic, Jaakko Astola, Claudio Moraga and Dušan Gajic

15:30-16:00 Coffee Break

16:00-17:30 Session 3a: Investigations on Types of Clones

Chair: Dmitry Zhuk

Polynomially Closed Co-Clones
Victor Lagerkvist and Magnus Wahlström

Partial R-clones
Boris Romov and Karsten Schölzel

Essentially Minimal Clones of Rank 3 on a Three-Element Set
Hajime Machida and Ivo G. Rosenberg

Session 3b: Synthesis and Fault Analysis for Reversible Circuits

Chair: D. Michael Miller

Efficient Reversible Logic Synthesis via Isomorphic Subgraph Matching
Mridul Krishna and Anupam Chattopadhyay

A Cube Pairing Approach for Synthesis of ESOP based Reversible Circuit
Chandan Bandyopadhyay, Hafizur Rahaman and Rolf Drechsler

Analysis of Faults in Reversible Computing
Martin Lukac, Michitaka Kameyama, Marek Perkowski, Pawel Kerntopf and Claudio Moraga

10:30-12:00 Session 4a: Algebra and Logic II

Chair: Robert Wille

Lukasiewicz Negation and Neighbors of Intuitionistic Logic
Thomas Ferguson

Five new construction methods on residuated monoids
Sándor Jenei

First-order Logic Based on Set Approximation: a Partial Three-valued Approach
Tamás Mihálydeák

Session 4b: Coding

Chair: Hiroki Nakahara

Evaluation of high-speed interfaces for VLSI systems using Tomlinson-Harashima Precoding
Yosuke Iijima and Yasushi Yuminaka

An Efficient Approach to Verifying Galois-Field Arithmetic Circuits of Higher Degrees and Its Application to ECC Decoders
Rei Ueno, Kotaro Okamoto, Naofumi Homma and Takafumi Aoki

Comparison of Spectrally Efficient Coding Techniques for High-Speed Serial Links
Yasushi Yuminaka, Yuuki Takada, Tomonao Okada and Yosuke Iijima

from 12:00 Excursion & Banquet

Wednesday, May 21st, 2014

9:00-10:00 Invited Talk III (Görschwin Fey): Command and Data Handling Infrastructure for Space Systems | Chair: Mathias Soeken

10:00-10:30 Poster Session & Coffee Break

10:30-12:00 Session 5a: Investigations on Properties of Clones

Chair: Elena Dubrova

Countable intervals of partial clones
Lucien Haddad and Karsten Schölzel

Relation graphs and partial clones on a 2-element set
Miguel Couceiro, Lucien Haddad, Karsten Schölzel and Tamás Waldhauser

Minimal Cut Vectors and Logical Differential Calculus
Miroslav Kvassay, Elena Zaitseva, Vitaly Levashenko and Jozef Kostolny

Session 5b: Advances for Quantum Computation

Chair: Mitch Thornton

The decomposition of $U(n)$ into $XU(n)$ and $ZU(n)$
Alexis De Vos and Stijn De Baerdemacker

Synthesis of Ternary Grover's Algorithm
Sudhindu Bikash Mandal, Amlan Chakrabarti and Susmita Sur-Kolay

Review of some basic aspects of ternary Reversible and Quantum Computing
Claudio Moraga

12:00-13:30 Lunch

13:30-15:00 Session 6a: Decision Diagrams and other Function Representations

Chair: Radomir Stankovic

Analysis Methods of Multi-State Systems Partially Having Dependent Components Using Multiple-Valued Decision Diagrams
Shinobu Nagayama, Tsutomu Sasao, Jon Butler, Mitch Thornton and Theodore Manikas

System Probability Distribution Modeling using MDDs
Mitch Thornton, Theodore Manikas, Stephen Szygenda and Shinobu Nagayama

On Submodular and Supermodular Functions on Lattices and Related Structures
Dan Simovici

Session 6b: Design and Evaluation of Memories

Chair: Naofumi Homma

Associative Memories Based on Multiple-Valued Sparse Clustered Networks
Hooman Jarollahi, Naoya Onizawa, Takahiro Hanyu and Warren J. Gross

Design of a Logic-in-Memory Multiple-Valued Reconfigurable VLSI Based on a Bit-Serial Packet Data Transfer Scheme
Shintaro Harada, Xu Bai, Michitaka Kameyama and Yoshichika Fujioka

Soft-Delay-Error Evaluation in Content-Addressable Memory
Naoya Onizawa, Shoun Matsunaga, Noboru Sakimura, Rryusuke Nebashi, Tadahiko Sugibayashi and Takahiro Hanyu

15:00-15:30 Poster Session & Coffee Break

15:30-17:00 Session 7a: Algebra and Logic III

Chair: Mathias Soeken

Online Monitoring of Distributed Systems with a Five-valued LTL
Ming Chai and Holger Schlingloff

Ternary Parametron Based on Subharmonic Oscillation of Order Three by Forcing
Takako Soma and Takashi Soma

Inadmissible Class of Boolean Functions under Stuck-at Faults
Debesh Kumar Das, Debabani Chowdhury, Bhargab B Bhattacharya and Tsutomu Sasao

Session 7b: Hardware Components

Chair: Vincent Gaudet

Variation-Effect Analysis of MTJ-Based Multiple-Valued Programmable Resistors
Masanori Natsui and Takahiro Hanyu

Differential-time and pulse-amplitude modulation signaling for serial link transceivers
Mostafa Rashdan and James Haslett

An Algorithm for Constructing a Smallest Register with Non-Linear Update Generating a Given Sequence
Nan Li and Elena Dubrova

Tuesday, May 20th, 2014

9:00-10:00 Invited Talk II (Daniel Große): Circuit Design: Slip Schedule or Automate Debug | Chair: Robert Wille

10:00-10:30 Coffee Break

17:00

18:00

Plenary Session & Closing

Guided Tour Bremen's historical city centre