

MaCS 2016

Eger, Hungary, May 20-22, 2016



Co-chairs

Adrian Petruşel, UBB, Cluj-Napoca
Zoltán Horváth, ELTE, Budapest

Steering committee

Adrian Petruşel, UBB, Cluj-Napoca
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Zoltán Csörnyei, ELTE, Budapest
István Faragó, ELTE, Budapest
Zsolt Páles, DE, Debrecen
Horia F. Pop, UBB, Cluj-Napoca
Anna Soós, UBB, Cluj-Napoca
László Tóth, PTE, Pécs

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József Bukor, UJS, Komárno
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Péter Simon, ELTE, Budapest
László Simon, ELTE, Budapest
Anna Soós, UBB, Cluj-Napoca
Veronika Stoffová, UJS, Komárno

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11th Joint Conference on Mathematics and Computer Science

<http://macs.elte.hu>

PROGRAMME

Friday - 20 May

12:00-14:00 Arrival, registration and check-in
13:00-14:00 Welcome coffee and sandwiches
14:00-16:00 Opening speech and plenary talks
16:00-16:15 Coffee break
16:15-18:00 Section Talks
19:30 - Dinner in the hotel

Saturday - 21 May

9:00-10:45 Section Talks
10:45-11:00 Coffee break
11:00-12:30 Section Talks
12:30-14:00 Lunch in the hotel
14:00-15:30 Section Talks
15:30-15:45 Coffee Break
15:45-16:00 Gathering at the lobby of the hotel
16:00-17:00 Guided walking tour in the town
17:00-18:30 Visit to the historical Castle of Eger
18:30-19:00 Walking to the historical wine cellar
István pince
19:00-22:30 Dinner with wine tasting in István Pince

Sunday - 22 May

9:00-10:00 Section Talks
10:00-10:15 Coffee break
10:15-12:00 Plenary talks and closing speech
12:00 - Lunch in the hotel



**11th Joint Conference on
Mathematics and Computer Science**
20-22 May, 2016
Eger, Hungary



Conference venue: Hotel Eger-Park****

Address: H-3300 Eger, Szálloda u. 1-3.

Tel: +36 / 36-522-200

E-mail: info@hotelegerpark.hu

www.hotelegerpark.hu

Programme

Friday - 20 May

12:00 - 14:00 Arrival, registration and check-in

13:00 - 14:00 Welcome coffee and sandwiches

14:00 - 16:00 Opening speech and plenary talks

14:00 - 14:30 Opening speech by Zoltán Horváth and Horia F. Pop

14:30 - 15:15 Plenary talk by Róbert Horváth: Compartmental epidemic models and their qualitative properties

15:15 - 16:00 Plenary talk by Erzsébet Csuhaaj-Varjú: DNA Computing - Going Beyond Turing

16:00 - 16:15 Coffee break

16:15 - 18:00 Section Talks (7+7)

Maths (in Session Room 2. Maths)

Session Chair: Róbert Horváth

16:15 - 16:30 Viktória Tóth: Analysis of pseudorandom sequences

16:30 - 16:45 Tamás Krutki, Gábor Nagy: On simultaneous number systems with 3 bases

16:45 - 17:00 Bolojan Octavia-Maria: Delay Evolution Systems with Nonlocal Initial Conditions

17:00 - 17:15 Bálint Máté Takács: Modelling the ecological collapse of Easter Island

17:15 - 17:30 Diana Otrocol and Veronica Ana Ilea: Properties of functional differential equation in Banach spaces

17:30 - 17:45: Zeno Farkas: Development and Mathematical Analysis of a Space-Dependent Model for the Spread of Ebola

17:45 - 18:00 Gabriella Svanterné Sebestyén: Invasive species model with linear rat harvesting on Easter Island

Computer Science (in Session Room 1. CS)

Session Chair: Erzsébet Csuhaaj-Varjú

16:15 - 16:30 Alina Delia Calin: Dynamic Game Difficulty Balancing in Active Ageing Systems

16:30 - 16:45 Bence Babati, Norbert Pataki, Zoltán Porkoláb: An Approach to Detect Portability Issues of the Include Dependencies in C++

16:45 - 17:00 Péter Hudoba: Public key cryptography based on graph problems

17:00 - 17:15 Sándor Király, Tamás Balla, Gábor Kuser: Code School - Learn to Code by Practicing

17:15 - 17:30 Tibor Ásványi: Detecting negative cycles with Tarjan's breadth-first scanning algorithm

17:30 - 17:45 Tamás Gregus: Usage of a multi-functional glove in everyday life

17:45 - 18:00 Nagy Szebasztián Vilmos: Implementation of an Innovative Concept Experimenting Anywhere, Anytime

19:30 Dinner in the hotel

Saturday - 21 May

7:00 - 9:00 Breakfast

9:00 - 10:45 Section Talks (7+7+7)

Maths (in Session Room 2. Maths)

Session Chair: Anna Soós

9:00 - 9:15 Gabriela Olteanu: Primitive idempotents and group codes

9:15 - 9:30 Engel Olga and Szász Róbert: The radius of convexity and of uniform convexity a product of Bessel functions

9:30 - 9:45 Ferdinánd Filip, József Bukor and János T. Tóth: The structure of weighted densities

9:45 - 10:00 Ferenc Weisz: Two-dimensional Fourier transforms and Lebesgue points

10:00 - 10:15 Gábor Fábrián: Integrals of scalar fields over polygonal meshes

10:15 - 10:30 Gábor Kusper, Csaba Biró, Gergely Kovásznai: Solving SAT by Counting the Subsumed Full Length Ordered Clauses

10:30 - 10:45 G. Bognár, Z. Gilián: ECG processing by transformation methods

Computer Science (in Session Room 1. CS)

Session Chair: Horia F. Pop

9:00 - 9:15 Bence János Szabó, Melinda Tóth, István Bozó: Analysing the hierarchical structure of Erlang applications

9:15- 9:30 Csaba Szabó: Towards a service level implementation of testware

9:30 - 9:45 Dániel Horpácsi: Language for Erlang Refactoring

9:45 - 10:00 Dániel Lukács, Melinda Tóth, István Bozó: Transforming Erlang finite state machines

10:00 - 10:15 Gábor Horváth, Norbert Pataki: Transparent Functors for the C++ Standard Template Library

10:15 - 10:30 Gábor Valasek: Local geometry and parametrization of curves using Frenet coordinates

10:30 - 10:45 Gergely Dévai, Tibor Gregorics, Boldizsár Németh, Balázs Gregorics, Dávid János Németh, Gábor Ferenc Kovács, Zoltán Gera, András Dobreff, and Máté Karácsony: Novel Architecture for Executable UML Tooling

PhD workshop (in Room Eger)

Session Chair: Danut Ovidiu Pop

9:00 - 9:15 Abdulwahed Almarimi, Gabriela Andrejkova and Peter Sedmak: Anomalies Searching in Text Sequences

9:15 - 9:30 Ábel Garai: Scientific Methodology aiming Systems Interoperability in Complex Healthcare Infocommunication with Regard to Cross-Platform Integration of Distinct Telemedicine Appliances

9:30 - 9:45 Adriana Mihaela Coroiu: A predictive modeling based approach for treatment assistance and diagnosis prediction

9:45 - 10:00 Alina Delia Calin: Intelligent Virtual Platforms for Active Ageing Therapy - Machine Learning Methods for Gesture Recognition

10:00 - 10:15 Annamária Szenkovits: Automated Environment-Model Based Testing with Intelligent Methods in an Industrial Setting

10:15 - 10:30 Áron Baráth, Gábor Alex Ispánovics, Porkoláb Zoltán: Checking binary compatibility for modern programming language

10:30 - 10:45 Artur Poór, Gábor Páli, Tamás Kozsik, Melinda Tóth: Benefits of Implementing A Query Language in Purely Functional Style

10:45 - 11:00 Coffee break

11:00 - 12:30 Section Talks (6+6+4)

Maths (in Session Room 2. Maths)

Session Chair: Zsolt Páles

11:00 - 11:15 Alexandru-Darius Filip: Coupled fixed point results in generalized Kasahara spaces and applications

11:15 - 11:30 Voichita Adriana Radu: Note on convergence of the iterates of some linear and positive operators in q and (p,q) -calculus, using contraction principle

11:30 - 11:45 Kristóf Szarvas: Convergence of integral operators in variable Lebesgue spaces

11:45 - 12:00 Miklós Bartha and Miklós Krész: Reducing graphs while preserving the number of their perfect matchings

12:00 - 12:15 Simion Breaz: Nil-clean matrices

12:15 - 12:30 Sándor Fridli: Sufficient conditions for the integrability dyadic maximal Walsh series

Computer Science (in Session Room 1. CS)

Session Chair: Veronika Stoffova

11:00 - 11:15 Gergely Kovásznai: What is the State-of-the-Art in DQBF solving

11:15 - 11:30 Illés, Zoltán PhD; H. Bakonyi, Victoria; Illés, Zoltán: Supporting dynamic, bi-directional presentation management in real-time

11:30 - 11:45 Jan Perhac, William Steingartner, Valerie Novitzka: Some aspects about coalgebraic logic in computer science

11:45 - 12:00 Judit Kőszegi: Executable Semantics for Erlang

12:00 - 12:15 László G. Menyhárt: Creative introduction of systematic programming with HTML5 support

12:15 - 12:30 Máté Karácsony, Máté Tejfel: Configurable Data Structure Layout for Memory Hierarchies

PhD workshop (in Room Eger)

Session Chair: Levente Simon

11:00 - 11:15 Bálint Molnár, András Béleczi: Modeling Framework for Designing and Analyzing Document-centric Information Systems based on HypergraphDB

11:15 - 11:30 Boldizsár Németh, Máté Tejfel: Translationbased automatic exam evaluation for mass education

11:30 - 11:45 Csaba Kerepesi, Balázs Szalkai, Bálint Varga, Vince Grolmusz: Comparative Connectomics - Mapping the Inter-Individual Variability of Connections within the Regions of the Human Brain

11:45 - 12:00 Danut Ovidiu Pop: Technics from Deep Learning used for Pedestrians field

12:30 - 14:00 Lunch in the hotel

14:00 - 15:30 Section Talks (6+6+4)

Maths (and Computer Science) (in Session Room 2. Maths)

Session Chair: Sándor Fridli

14:00 - 14:15 Gyöngyvér Márton: End-to-end encryption real perspective or danger in cryptography
14:15 - 14:30 Veronika Stoffova: Random number generators and their implementation and use
14:30 - 14:45 William Steingartner, Valerie Novitzka, Emilia Demeterova: Categorical semantics of imperative programming language in coalgebras
14:45 - 15:00 Zoltán Ács, Zoltán Vincellér: A word-based distance for supervised learning over e-commerce shop items
15:00 - 15:15 Zsolt Borsi: A translation of interaction relationships into SMV
15:15 - 15:30 Zsolt Parragi, Zoltan Porkoláb: Preserving Type Information in Memory Usage Measurement of C++ Programs

Computer Science (in Session Room 1. CS)

Session Chair: Lehel Csató

14:00 - 14:15 Mátyás Béla Kuti, István Bozó, Melinda Tóth: Static analysis and visualisation of Erlang generic server behaviours
14:15 - 14:30 Melinda Pap: Customized error clustering of industrial surface inspection images
14:30 - 14:45 Péter Csiba, Ferdinánd Filip, János T. Tóth: On the existence of the generalized Gauss composition of means
14:45 - 15:00 Richard Forster: Collaboration Spotting Visual Analytics Tool Optimized For Very Large Graphs
15:00 - 15:15 Roberto Giachetta: Towards optimal satellite image classification for waterlogging and food detection
15:15 - 15:30 Viktória Zsók: Functional Programming for CPS Modeling

PhD workshop (in Room Eger)

Session Chair: Áron Baráth

14:00 - 14:15 Levente Simon, Anna Soós: Fixed sets of iterated (multi)function systems driven by Erdos-Rényi graphs
14:15 - 14:30 Rares F. Boian, Vlad Muresan, Cezar Giosan, Oana Cobeanu, Aurora Szentagotai, Flaviu Porutiu, Sanda Dragos: Therapeutic Plan Specification Language for a Computerized, Automated Intervention for Depression
14:30 - 14:45 Róbert-Adrian Rill: Measuring Human Divided Attention in Cyber-Physical Systems
14:45 - 15:00 Orsolya Vas: A Schechter-type critical point result for locally Lipschitz functions

15:30 - 15:45 Coffee break

15:45 - 16:00 Gathering at the lobby of the hotel

16:00 - 17:00 Guided walking tour in the town

17:00 - 18:30 Visit to the historical Castle of Eger

18:30 - 19:00 Walking to the historical wine cellar István pince

19:00 - 22:30 Dinner with wine tasting in István Pince and visit of the Wine Museum /address: 3300 Eger, Tündérpárt u. 5., below Hotel Korona/

Sunday - 22 May

7:00 - 9:00 Breakfast

9:00 - 10:00 Section Talks (3+4)

Maths (in Session Room 2. Maths)

Session Chair: Octavian Agradini

9:00 - 9:15 Cosmin Pelea: On some category theory constructions of multialgebras
9:15 - 9:30 Kovács Péter: Optimization problems in signal compression
9:30 - 9:45 Zsolt Németh: On the minimality of certain de la Vallee Poussin type projections

Computer Science (in Session Room 1. CS)

Session Chair: Zalán Bodó

9:00 - 9:15 Attila Kovács, Kristóf Szabados: Knowledge and mindset in software development - how developers, testers, technical writers and managers differ - a survey

9:15 - 9:30 Tibor Brunner, Norbert Pataki, Zoltán Porkoláb: Multidimensional approach for visualizing bug distribution in large software projects

9:30 - 9:45 Zoltán Porkoláb - Reverse compatibility issues with C++11/14 migration

9:45 - 10:00 Zsolt Borsi, Tibor Gregorics - Corrections to Program Verification Rules

10:00 - 10:15 Coffee break

10:15 - 12:00 Plenary talks and closing speech

10:15 - 11:00 Plenary talk by Zalán Bodó: Development and Mathematical Analysis of a Space-Dependent Model for the Spread of Ebola

11:00 - 11:45 Plenary talk by Octavian Agratini: New properties of certain Markov type approximation processes

11:45 - 12:00 Closing speech

12:00 Lunch in the hotel

Useful information

Free parking

Parking at the hotel is free for conference participants during the conference. At arrival, while entering the parking, you will get a parking ticket. At the reception, while checking in, you will have to ask the front desk agent to enable your room key card with parking privileges. During your stay, you will have to use your room key at the parking terminals to have free access to the parking lot. At the end of your stay, when you will check out, your parking ticket will be invalidated, so you will not have to pay.

Check-in and registration

After arrival you are kindly requested to register before checking in. The registration desk will be located in the lobby of the hotel.

The rooms can be occupied from 3 p.m. on the day of arrival, and must be vacated by 10 a.m. on the day of departure. The hotel provides luggage room facilities.

Wellness

Access to wellness facilities is included in the price of the accommodation during the conference and on Sunday afternoon (!) as well.

Free WIFI

WIFI is free of charge.

Changing room

First, please inform the registration personal about your request. Changing room from double to single is subject to availability, and is possible only if both of the roommates pay the single room surcharge on the spot.

Smoking is forbidden in the rooms

Smoking is only allowed in designated areas.

Check-out

Any extra costs – minibar, laundry, etc. - have to be paid before checking out.