

SOFSEM'2020 - Program at a glance

	Monday 20/1	Tuesday 21/1	Wednesday 22/1	Thursday 23/1				
8:00-16:00	Registration	Registration	Registration	Registration				
8:30-9:00	Opening Session							
9:00-10:30	Keynote 1: Erol Gelenbe	Keynote 2: Ernesto Damiani	Keynote 3: Gunnar Klau	Keynote 5: Elias Koutsoupias				
10:30-11:00	Coffee break	Coffee break	Coffee break	Coffee break				
11:00-12:30	Session 1 (FCS): Context Free Languages and Orderings	Session 2 (FDCE): Data Mining and Knowledge Discovery	Session 7 (FCS): Parameterized Complexity	Session: Student Research Forum 1	Session 12 (FDSE): Machine Learning Explanation and Applications	Session: Student Research Forum 2	Session 13 (FCS): Synthesis and Analysis of Programs	Session 14 (FSE): Testing and Security Assessment
12:30-14:00	Lunch break	Lunch break	Lunch break	Lunch break				
14:00-15:30	Session 3 (FCS): Algorithms for Scheduling and Testing	Session 4 (FDSE): Data Modeling and Applications	Session 8 (FCS): Approximation Algorithms on Graphs, Crystals and Qubits	Session 9 (FACB): Algorithms for Biological Sequences	Keynote 4: Mikolaj Bojanczyk	Session 15 (FCS): Games and Influence Spreading in Graphs	Session 16 (FSE): Good Programming Practices	
15:30-16:00	Coffee break	Coffee break						
16:00-17:30	Session 5 (FCS): Algorithms on Strings	Session 6 (FDSE): Natural Language Processing	Session 10 (FCS): Aspects of Transducers, Tree Automata and Orbitami Systems	Session 11 (FACB): Biological Networks	Social program	Session 17 (FCS): Spanning, Covering and Visualizing Graphs	Session 18 (FSE): Domain-specific Approaches in Software engineering	
17:30-18:00				Closing Session				

SOFSEM'2020

Detailed program

Track on Foundations of Computer Science (FCS)

Track on Foundations of Data Science and Engineering (FDSE)

Track on Foundations of Software Engineering (FSE)

Track on Foundations of Algorithmic Computational Biology (FACB)

Monday, January 20

Plenary Session 1:

Erol Gelenbe

Machine Learning for Cognitive Network Routing to Optimize QoS, Minimize Energy Consumption and Maximize Security

Session 1 (FCS): Context-free Languages and Orderings

Friedrich Otto

A Characterization of the Context-free Languages by Stateless Ordered Restart-Delete Automata

Martin Kutrib

Kernels of Sub-classes of Context-Free Languages

Kitti Gelle and Szabolcs Ivan

The Order Type of Scattered Context-free Orderings of Rank One is Computable

Session 2 (FDSE): Data Mining and Knowledge Discovery

Xavier Ouvrard, Jean-Marie Le Goff and Stephane Marchand-Maillet

The HyperBagGraph DataEdron: An Enriched Browsing Experience of Datasets

Elena Stefancova and Ivan Srba

POI Recommendation Based on Locality-specific Seasonality and Long-term Trends

Francesco De Fino, Barbara Catania and Giovanna Guerrini

GRaCe: a Relaxed Approach for Graph Query Caching (short)

Session 3 (FCS): Algorithms for Scheduling and Testing

Simon Pukrop, Alexander Mäcker and Friedhelm Meyer Auf der Heide

Approximating Weighted Completion Time for Order Scheduling with Setup Times

Nader Bshouty, Catherine Haddad-Zaknoon and George Haddad

Bounds for the Number of Tests in Non-Adaptive Randomized Algorithms for Group Testing

Janos Csirik, Gyorgy Dosa and David Koszo

Online Scheduling with Machine Cost and a Quadratic Objective Function

Session 4 (FDSE): Database Modeling and Applications

Issam Ghabri, Ladjel Bellatreche and Sadok Ben Yahia

Selection of Green Logical Data Warehouse Schema by Anti-Monotonicity Constraint

Xiaofan Wang

Inferring Deterministic Regular Expression with Unorder

Henrietta Dombrovskaya, Boris Novikov and Jeff Czaplewski

Connecting Galaxies: Bridging the Gap between Databases and Applications (short)

Session 5 (FCS): Algorithms on Strings

Takuya Mieno, Yuki Kuhara, Tooru Akagi, Yuta Fujishige, Yuto Nakashima, Shunsuke Inenaga, Hideo Bannai and Masayuki Takeda

Minimal Unique Substrings and Minimal Absent Words in a Sliding Window

Kohei Yamada, Yuto Nakashima, Shunsuke Inenaga, Hideo Bannai and Masayuki Takeda

Faster STR-EC-LCS Computation

Davaajav Jargalsaikhan, Diptarama Hendrian, Ryo Yoshinaka and Ayumi Shino-hara

Parallel Duel-and-sweep Algorithm for the Order-preserving Pattern Matching

Session 6 (FDSE): Natural Language Processing

Thuy Pham, Thao Nhu Nguyen, Quang Pham, Ky Han Cao and Binh Thanh Nguyen

Vietnamese Punctuation Prediction Using Deep Neural Networks

Anna Śniegula, Aneta Poniszewska-Maranda and Łukasz Chomątek

Towards the Named Entity Recognition Methods in Biomedical Field

Ishadi Jayasinghe and Surangika Ranathunga

Two-step Memory Networks for Deep Semantic Parsing of Geometry Word Problems (short)

Dominik Vasko, Samuel Pecár and Marián Šimko

Automatic Text Generation in Slovak Language (short)

Tuesday, January 21

Plenary Session 2:

Ernesto Damiani

Certified Machine-Learning Models

Session 7 (FCS): Parameterized Complexity

Nils Morawietz, Niels Gröttemeier, Christian Komusiewicz and Frank Sommer
Refined Parameterizations for Computing Colored Cuts in Edge-Colored Graphs

Faisal Abu-Khzam, Cristina Bazgan and Henning Fernau
Parameterized Dynamic Variants of Red-Blue Dominating Set

Ronny Tredup

Parameterized Complexity of Synthesizing b -bounded (m,n) -T-systems

Session SRF1: Foundations of Data Science, Software Engineering, Algorithmic Computational Biology

Khaled Al-Sabbagh, Mirosław Staron, Wilhelm Meding, and Mirosław Ochodek
Early Prediction of Test Case Verdict with Word Embeddings vs. Bag-of-Words

Jakub Střelský

PointNet with Spin Images

Katsuhito Nakashima, Diptarama Hendrian, Ryo Yoshinaka and Ayumi Shinohara
An Extension of Linear-size Suffix Tries for Parameterized Strings

Andreas Sass, Enes Esatbeyoglu, and Till Iwwerks

Data-Driven Powertrain Component Aging Prediction Using In-Vehicle Signals

Jakob Lykke Andersen, Marc Hellmuth, Daniel Merkle, Nikolai Nøjgaard and Marco Peressotti
A Graph-Based Tool to Embed the π -Calculus into a Computational DPO Framework

Session 8 (FCS): Approximation Algorithms on Graphs; Crystals; and Qubits

Nicolas Bousquet and Alice Joffard

Approximating Shortest Connected Graph Transformation for Trees

Markus Blumenstock and Frank Fischer

A Constructive Arboricity Approximation Scheme

Duncan Adamson, Argyrios Deligkas, Vladimir V. Gusev and Igor Potapov

On the Hardness of Energy Minimisation for Crystal Structure Prediction (short)

Maxime Remaud and Simon Martiel

Practical Implementation of a Quantum Backtracking Algorithm (short)

Session 9 (FACB): Algorithms for Biological Sequences

Tom Davot, Annie Chateau, Rodolphe Giroudeau and Mathias Weller

Linearizing Genomes: Exact Methods and Local Search

Manuel Caceres, Simon Puglisi and Bella Zhukova

Fast Indexes for Gapped Pattern Matching

Radu-Stefan Mincu and Alexandru Popa

The Maximum Equality-Free String Factorization Problem: Gaps vs. No Gaps

Session 10 (FCS): Aspects of Transducers, Tree Automata, and Oritatami Systems

Stavros Konstantinidis, António Machiavelo, Nelma Moreira and Rogério Reis

On the Average State Complexity of Partial Derivative Transducers

Liam Jordon and Philippe Moser

On the Difference Between Finite-State and Pushdown Depth

Štěpán Plachý and Jan Janousek

On Synchronizing Tree Automata and Their Work-Optimal Parallel Run, Usable for Parallel Tree Pattern Matching (short)

Kohei Maruyama and Shinnosuke Seki

Counting Infinitely by Oritatami Co-transcriptional Folding (short)

Session 11 (FACB): Biological Networks

Vincent Berry, Celine Scornavacca and Mathias Weller

Scanning Phylogenetic Networks is NP-hard

Mohammad Mehdi Hosseinzadeh

A New Heuristic to Find Overlapping Dense Subgraphs in Biological Networks (short)

Wednesday, 22 January

Plenary Session 3:

Gunnar Klau

Haplotype phasing or deciphering the scrolls from the four schools of Amathus

Session 12 (FDSE): Machine Learning Explanation and Applications

Gabriel Ferretini, Julien Aligon and Chantal Soulé-Dupuy

Explaining Single Predictions: A Faster Method

Giovanna Castellano, Ciro Castiello, Corrado Mencar and Gennaro Vessio

Crowd Detection for Drone Safe Landing through Fully-Convolutional Neural Networks

Kristina Machova, Gabriela Demkova and Marian Mach

Modelling of the Fake Posting Recognition in On-line Media using Machine Learning (short)

Session SRF2: Foundations of Computer Science

Ryu Wakimoto, Satoshi Kobayashi, Yuki Igarashi, Davaajav Jargalsaikhan, Diptarama Hendrian, Ryo Yoshinaka and Ayumi Shinohara

AOBA: An Online Benchmark tool for Algorithms in stringology

Simone Faro, Domenico Cantone, and Stefano Scafiti

Bit-Layers Text Encoding for Efficient Text Processing

Simone Faro, Stefano Scafiti, and Francesco Pio Marino

Fast-Insertion-Sort: a New Family of Efficient Variants of the Insertion-Sort Algorithm

Xinyu Chu, Ping Lu, and Haiming Chen

Grammars and a Random Generator for Deterministic Chain Regular Expressions

Erwin de Jager and Stijn de Gouw

Hybrid Analysis of BPEL Models with Grammars

Plenary Session 4:

Mikolaj Bojanczyk

Polyregular functions

Thursday, 23 January

Plenary Session 5:

Elias Koutsoupias

Incentive vulnerabilities of proof-of-work blockchains

Session 13 (FCS): Synthesis and Analysis of Programs

Rachel Faran and Orna Kupferman

On Synthesis of Specifications with Arithmetic

Rick Erkens, Jurriaan Rot and Bas Luttik

Up-to Techniques for Branching Bisimilarity

Benjamin Mourad and Matteo Cimini

A Calculus for Language Transformations (short)

Session 14 (FSE): Testing and Security Assessment

Aleksander Sadaj, Sylwia Kopczyńska, Jerzy Nawrocki and Mirosław Ochodek. Maintainability of automatic acceptance tests for web applications

A Case Study Comparing two Approaches to Organizing Code of Test Cases

Fabiola Moyón, Christoph Bayr, Daniel Mendez, Sebastian Dännart and Kristian Beckers

A Light-weight Tool for the Self-Assessment of Security Compliance in Software Development – An Industry Case

Karol Rástočný and Marek Bruchatý

Does Live Regression Testing Help? (short)

Session 15 (FCS): Games and Influence Spreading in Graphs

Thomas Erlebach and Jakob Spooner

A Game of Cops and Robbers on Graphs with Periodic Edge-Connectivity

Naoka Fukuzono, Tesshu Hanaka, Hironori Kiya, Hirotaka Ono and Ryogo Ya-maguchi

Two-player Competitive Diffusion Game: Graph Classes and the Existence of a Nash Equilibrium (short)

Shahin Kamali, Avery Miller and Kenny Zhang

Burning Two Worlds: Algorithms for Burning Dense and Tree-like Graphs

Session 16 (FSE): Good Programming Practices

Theofanis Vartziotis, Apostolos Zarras, Anastasios Tsimakis and Panos Vassiliadis

Recommending Trips in the Archipelago of Refactorings

Matúš Sulír

String Representations of Java Objects: An Empirical Study

Aggelos Papamichail, Apostolos Zarras and Panos Vassiliadis

Do People Use Naming Conventions in SQL Programming?

Session 17 (FCS): Spanning, Covering, and Visualizing Graphs

Leonid Barenboim and Tzalik Maimon

Simple Distributed Spanners in Dense Congest Networks

Frank Gurski, Stefan Hoffmann, Dominique Komander, Carolin Rehs, Jochen Rethmann and Egon Wanke

Computing Directed Steiner Path Covers for Directed Co-Graphs (short)

Bardia Hamedmohseni, Zahed Rahmati and Debajyoti Mondal

Simplified Emanation Graphs: A Sparse Plane Spanner with Steiner Points (short)

Giuseppe Liotta, Ignaz Rutter and Alessandra Tappini

Simultaneous FPQ-Ordering and Hybrid Planarity Testing (short)

Session 18 (FSE): Domain-specific Approaches in Software Engineering

Bogdan Aman and Gabriel Ciobanu

Employing Costs in Multiagent Systems with Timed Migration and Timed Communication

Ovidiu Cosma, Petrica Pop and Cosmin Sabo

A Novel Hybrid Genetic Algorithm for the Two-stage Transportation Problem with Fixed Charges Associated to the Routes

Mirosław Ochodek, Sylwia Kopczyńska and Jerzy Nawrocki

A Case Study on a Hybrid Approach to Assessing the Maturity of Requirements Engineering Practices in Agile Projects (REMMA) (short)