Report on Logic in Computer Science (LICS'23)

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Th 38th Annual ACM/ IEEE Symposium on Logic in Computer Science (LICS), took place at Boston University, Boston, USA, from June 26 to June 29, 2023, with co-located events taking place on June 24 and June 25. Five workshops were co-located with LICS 2023: combinatorial games in finite model theory, the decision problem in first order logic, international workshop on quantitative logical method, structure meets power, and the logic mentoring workshop.

The main events were hosted in the classrooms of the Boston University's College of Arts & Sciences, with most of social events hosted in the Boston University's Dahod Family Alumni Center at the Castle. The conference reception was on the 17th floor of the new Boston University's Center for Computing and Data Science, with a great view on the Charles River, Boston and Cambridge.

The LICS 2023 program included invited talks by Dale Miller (Inria Saclay, France) on a system of inference based on proof search, Toniann Pitassi (University of Toronto, Canada) on algebraic proof complexity, and Dan Suciu, (University of Washington, USA) on applications of information inequalities to database theory. In addition, the program included invited tutorials by Adnan Darwiche (University of California, Los Angeles, USA) on logic for explainable AI, and Azadeh Farzan (University of Toronto, Canada) on commutativity in automated program verification. The program further included 63 contributed papers which were selected from 192 submissions. LICS 2023 also hosted a poster session with a dozen of paper presented, mostly by students.

As usual, LICS 2023 was also the occasion to award several recognitions. This year the Kleene Award for Best Student Paper, sponsored by the European Association for Theoretical Computer Science (EATCS), went to the paper *"The Identity Problem in the special affine group of $\mathbb{Z}^2$"* by Ruiwen Dong (Oxford University).

Starting in 2021, around 10% of accepted LICS papers are selected as *distinguished papers*. The PC Committee has chosen:

— *"Orbit-finite linear programming"*
by Arka Ghosh, Piotr Hofman and Sławomir Lasota
— *"Fully Abstract Normal Form Bisimulation for call-by-value PCF"*
by Nikos Tzevelekos, Vasileios Koutavas and Yu-Yang Lin
— *"Formalizing $\pi_4(S^3) \cong Z/2Z$ and Computing a Brunerie Number in Cubical Agda"*
by Axel Ljungström and Anders Mörtberg
— *"The Descriptive Complexity of Graph Neural Networks"*
by Martin Grohe

— *"Symmetries of graphs and structures that fail to interpret a finite thing"*
by Libor Barto, Bertalan Bodor, Marcin Kozik, Antoine Mottet and Michael Pinsker
— *"ωPAP Spaces: Reasoning Denotationally About Higher-Order, Recursive Probabilistic and Differentiable Programs"*
by Mathieu Huot, Alexander K. Lew, Vikash K. Mansinghka and Sam Staton
— *"Extensional and Non-extensional Functions as Processes"*
by Ken Sakayori and Davide Sangiorgi

To acknowledge the long-term, foundational nature of papers appearing in LICS, the Test-of-Time Award is given annually to the paper or papers that were published twenty years ago and that have "stood the test of time". This year, the Test-of-Time Award committee consisting of Nathalie Bertrand, Phokion G. Kolaitis (chair), John Mitchell, selected three outstanding papers from the 18th Annual IEEE Symposium on Logic in Computer Science, Ottawa, Canada, 2003:

— *"Tractable conservative Constraint Satisfaction Problems"*
by Andrei A. Bulatov
— *"An NP Decision Procedure for Protocol Insecurity with XOR"*
by Yannick Chevalier, Ralf Küsters, Michaël Rusinowitch, and Mathieu Turuani
— *"Intruder Deductions, Constraint Solving and Insecurity Decision in Presence of Exclusive OR"*
by Hubert Comon-Lundh and Vitaly Shmatikov

We would like to extend our appreciation to everyone who contributed to the success of LICS 2023. In particular to program committee members for their commitment, hard work, and flexibility in taking on last-minute tasks due to unexpected circumstances. Our warm thanks to the 203 external reviewers, to all the authors who submitted papers, as well as to the invited and tutorial speakers.

LICS 2023 was sponsored by the ACM Special Interest Group on Logic and Computation (ACM SIGLOG), the IEEE Technical Committee on Mathematical Foundations of Computing, the Boston University Rafik B. Hariri Institute for Computing and Computational Science & Engineering, the Boston University College of Arts & Sciences, and the Boston University Department of Computer Science.