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*Advancing Computing as a Science & Profession*

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# STOC '23

Proceedings of the 55th Annual ACM Symposium on

## Theory of Computing

*Edited by:*

**Barna Saha and Rocco A. Servedio**

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# Welcome from the Program Chair

The papers in this volume were presented at the 55th Annual ACM Symposium on Theory of Computing (STOC 2023), sponsored by the ACM Special Interest Group on Algorithms and Computation Theory (SIGACT). The conference was held in Orlando, Florida, as part of the ACM Federated Computing Research Conference (FCRC). The papers were presented as live talks during sessions held between June 20-23, 2023. STOC 2023 was part of Theory Fest, which included a range of panels, meetings, and social activities. FCRC 2023 featured plenary talks given by Kunle Olukotun, Margaret Martonosi, Shafi Goldwasser, Don Towsley, and Torsten Hoefler.

In response to the Call for Papers, 480 submissions to STOC were received by the submission deadline of November 7, 2022. The Program Committee deliberations continued electronically, followed by two half-day virtual PC meetings that took place January 30th and 31st, 2023, when the final decisions were made. The Program Committee selected 155 papers to be accepted. Among these seven pairs of papers had joint presentations, so there were 148 talks at the conference and there are 155 papers in the proceedings.

The Program Committee would like to thank all authors who submitted papers for consideration. From among many excellent candidates, the committee selected the following two papers to receive the STOC 2023 Best Paper Award:

*“The Randomized  $k$ -Server Conjecture is False!”*

by Sebastien Bubeck (Microsoft Research), Christian Coester (University of Oxford), and Yuval Rabani (Hebrew University);

and

*“Doubly Efficient Private Information Retrieval and Fully Homomorphic RAM Computation from Ring LWE”*

by Wei-Kai Lin (Northeastern University), Ethan Mook (Northeastern University), and Daniel Wichs (Northeastern University and NTT Research).

The papers

*“The Power of Multi-Step Vizing chains”*

by Aleksander Bjørn Grodt Christiansen (Technical University of Denmark, DTU)

and

*“Subsampling Suffices for Adaptive Data Analysis”*

by Guy Blanc (Stanford University)

were selected for the Danny Lewin Best Student Paper Award.

The Program Committee acknowledges the extraordinary effort made by the members of the community whose careful reviews of the submissions were vital for the success of the conference. I am personally extremely grateful to Anupam Gupta, whose guidance throughout the process was truly invaluable, and to Alexandr Andoni, Nikhil Bansal, Paul Beame, Giuseppe Italiano, Sanjeev Khanna, Ryan O'Donnell, Toniann Pitassi, Tal Rabin, Tim Roughgarden, and Clifford Stein for their helpful advice. I especially thank Shivam Nadimpalli for invaluable technical help. Many thanks are due to Barna Saha both for her work as General Chair of STOC 2023 and for her work as Chair of the Theory Fest Organizers. I would also like to thank Debarati Das, Sumegha Garg, Elena Grigorescu, Barna Saha, and Virginia Vassilevska Williams for their work as TCS for All Meeting Organizers, and Clément Canonne, Elena Grigorescu, and Raghu Meka for their work as Theory Fest Organizers. I thank Tom Gur for his service as SafeTOC Advocate at STOC 2023. I would also like to thank the entire SIGACT Executive Committee, particularly Tal Rabin, for their support and guidance; Paul Beame for managing the STOC website; Eddie Kohler (and Anupam Gupta!) for their HotCRP technical support; Eric Allender, Diana Brantuas, Donna Cappelletti, and Adrienne Griscti for their help with proceedings-related matters; and Simone and Dirk Beyer from the Proceedings Team at Conference Publishing Consulting for their diligent work on the proceedings. Moreover, thanks to the sponsors Akamai, Apple, Google, and IBM for their generous support.

Lastly, I would like to express my deep gratitude to all the members of the Program Committee, who worked with great perseverance and dedication, even over the winter break. It was an inspiring experience to work with and learn from this amazing group of brilliant colleagues.

Rocco Servedio  
STOC 2023 Program Chair

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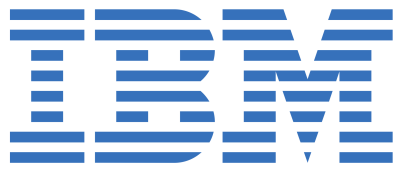
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