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Edited by

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■ Preface

The papers in this volume were presented at the 14th Innovations in Theoretical Computer Science (ITCS 2023) conference. The conference was held on January 10–13, 2023, at MIT in Cambridge, MA. ITCS welcomes both conceptual and technical contributions whose contents will advance and inspire the greater theory community. ITCS seeks to promote research that carries a strong conceptual message, for example, introducing a new concept or new model, opening a new line of inquiry within traditional or interdisciplinary areas, introducing new mathematical techniques and methodologies, or new applications of known techniques.

We received 238 submissions (and an additional few which the authors retracted during the reviewing process). Of these, the program committee selected 101 papers. The submission pool was very strong, which explains the high acceptance rate. The conference format was single-session with the goal of promoting a sense of community and promoting the exchange of ideas between different areas of theoretical computer science. Due to the high number of accepted papers each talk was only 8 minutes long. We thus asked the authors of each paper to submit a 20-25 minute video, which we posted on the website (on the program page): <http://itcs-conf.org/itcs23/itcs23-program.html>.

The program committee (PC) consisted of 39 fantastic members (excluding the chair): Ittai Abraham (VMware Research), Alexandr Andoni (Columbia University), Shalev Ben-David (University of Waterloo), Nir Bitansky (Tel Aviv University), Zvika Brakerski (Weizmann Institute), Michael Elkin (Ben-Gurion University), Michal Feldman (Tel Aviv University), Ankit Garg (Microsoft), Ran Gelles (Bar-Ilan University), Seth Gilbert (NUS), Prithvi Kamath (Google), Daniel Kane (UC San Diego), Dakshita Khurana (UIUC), Bobby Kleinberg (Cornell), Swastik Kopparty (University of Toronto), Pravesh K. Kothari (CMU), Alex Lombardi (Simons Institute and UC Berkeley), Shachar Lovett (University of California, San Diego), Brendan Lucier (Microsoft), Fermi Ma (Simons Institute and UC Berkeley), Ankur Moitra (MIT), Omer Paneth (Tel Aviv University), Aaron Roth (University of Pennsylvania), Guy Rothblum (Weizmann), Aviad Rubinfeld (Stanford), Barna Saha (University of California, San Diego), Raghuvansh Saxena (Microsoft), Aaron Sidford (Stanford), Mohit Singh (Georgia Institute of Technology), Adam Smith (Boston University), Nikhil Srivastava (UC Berkeley), Avishay Tal (UC Berkeley), Christos Tzamos (University of Wisconsin-Madison), Chris Umans (Caltech), Ellen Viterick (UC Berkeley), Omri Weinstein (Columbia University), Mary Wootters (Stanford University), John Wright (Columbia University), Henry Yuen (Columbia University). I am extremely grateful to each and every member of the PC. The PC members worked diligently to produce a fantastic program. I am also grateful to my wonderful assistant chair, Maya Kalai, who helped tremendously throughout the process, in particular, in managing the website (among other things).

The program was divided into sessions, where each session consisted of roughly 5 papers that are connected in some way (eg., they all fall into the same sub-area of theory). We continued with the wonderful ITCS tradition, where the chair of each session *ranted* about the papers in the session, emphasizing their contributions and the ways in which they are innovative, and tying all the papers in the session together. This was a huge success and made the sessions not only more understandable but very enjoyable. I would like to express my deep gratitude to all the session chairs who invested in preparing wonderful rants: Mohsen Ghaffari (MIT), Sam Hopkins (MIT), Adam Kalai (Microsoft), Alex Lombardi (Simons Institute and UC Berkeley), Brendan Lucier (Microsoft), Ankur Moitra (MIT), Sofya Raskhodnikova



(Boston University), Raghuvansh Saxena (Microsoft), Aaron Sidford (Stanford), Adam Smith (Boston University), Nikhil Srivastava (UC Berkeley), Avishay Tal (UC Berkeley), and John Wright (Columbia University).

We also continued with the wonderful tradition of graduating bits, where students and postdocs that are looking for either faculty jobs or postdoc jobs, give a short (few minutes) presentation. I deeply thank Parikshit Gopalan for masterfully leading the graduating bits session, with a lot of humor, passion, and encouragement. The session was a huge success!

This ITCS also included an informal poster session, where the authors got an additional opportunity to present their work (it was not mandatory), and the attendees had the opportunity to ask questions and have more in-depth discussions. It was very well attended and was a successful and fun event.


This year we did an experiment regarding anonymization in the review process. This experiment was done in collaboration with Nihar Shah from CMU. There is widespread debate on whether to anonymize author identities in peer review. The key argument for anonymization is to mitigate bias, whereas arguments against anonymization posit various uses of author identities in the review process. We adopted a middle ground by initially anonymizing the author identities from reviewers, revealing them after the reviewer had submitted their initial reviews, and allowing the reviewer to change their review subsequently. Nihar Shah analyzed the data and you can find the report here: <https://arxiv.org/pdf/2301.00221.pdf>. His key findings are: (I) A majority of reviewers self-report not knowing and being unable to guess the authors' identities for the papers they were reviewing. (II) After the initial submission of reviews, only 7% of reviews changed their overall merit score and 3.8% changed their self-reported reviewer expertise. (III) Even among reviews that changed, there was little correlation between the change in overall merit and the rank of the authors' affiliations. We also conducted an anonymous survey to obtain opinions from reviewers and authors. The main findings from the 200 survey responses are: (i) A vast majority of participants favor anonymizing author identities in some form. (ii) The "middle-ground" initiative of ITCS 2023 was appreciated. (iii) Detecting conflicts of interest is a challenge that needs to be addressed if author identities are anonymized. Overall, these findings support anonymization of author identities in some form (e.g., as was done here), as long as there is a robust and efficient way to check conflicts of interest.

Finally, I would like to thank our sponsors: A huge thanks to Google for their generous contribution which allowed us to offer minimal registration fee, which in turned allowed many to participate in the conference. We thank MIT, and specifically CSAIL, for allowing us to use their space for the conference. MIT turned out to be a fantastic home for the conference. We thank the Simons institute for helping us handle all the video submissions from the authors. I would also like to thank the MIT students and postdocs who volunteered to help with all the arrangements during the conference: Anders Aamand, Amartya Shankha Biswas, Justin Chen, Lily Chung, Lalita Devadas, Jane Lange, Kuikui Liu, Henry Ma, Ted Pyne, and Sujit Rao.


Let me end this note with a personal thanks to Ronitt Rubinfeld and her assistant Joanne Talbot Hanley, for handling all the local organization to perfection. Working with both of you was a lot of fun, and the conference was a huge success!

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Microsoft Research and MIT

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