Bhaskar Ray Chaudhury

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---------- Personal Details

Date of Birth	**7th August 1993**, *Kochi, Kerala,* India.

---------- Employment

2021–present	**Postdoctoral Researcher (Future Faculty Fellow)**, *Department of Computer Science,,* University of Illinois at Urbana Champaign, Champaign, Illinois.
2017–2021	**Researcher**, *Algortihms and Complexity,,* Max Planck Institute for Informatics, Saarbrücken, Germany.

---------- Education

2017–2021	**PhD (Summa Cum Laude) in Computer Science (Dr. rer. nat.)**, *Max Planck Institute for Informatics and Saarland University,* Saarbrücken, Germany, Supervisors: Kurt Mehlhorn, Karl Bringmann.
2015–2017	**Graduate School of Computer Science**, *Saarland University,* Saarbrücken, Germany.
2011–2015	**Bachelor in Technology (B. Tech.)**, Department of Computer Science and Engineering, *National Institute of Technology,* Trichy, Tamil Nadu.

---------- Awards

2021	**Future Faculty Fellowship**, University of Illinois Urbana Champaign (**UIUC**).
2020	**Best Paper with a Student Lead Author Award**, 21st ACM Conference on Economics and Computation (**EC**).
	Exemplary Paper in the Theory Track Award, 21st ACM Conference on Economics and Computation (**EC**).

---------- Publications

2022	**Fairness in Federated Learning via Core-Stability** , *Bhaskar Ray Chaudhury, Linyi Li, Mintong Kang, Bo Li, Ruta Mehta,* Proc. of the 36th Conference on Neural Information Processing Systems (**NeurIPS**).
	Competitive Equilibrium with Chores: Combinatorial Algorithm and Hardness, *Bhaskar Ray Chaudhury, Jugal Garg, Peter McGlaughlin, Ruta Mehta,* Proc. of the 23rd ACM Conference on Economics and Computation (**EC**).

Maximizing Nash Social Welfare in 2-Value Instances ,
Hannaneh Akrami, Bhaskar Ray Chaudhury, Martin Hoefer, Kurt Mehlhorn, Marco Schmalhofer,
Golnoosh Shahkarami, Giovanna Varricchio, Quentin Vermande, Ernest van Wijland,
Proc. of the 36th AAAI Conference on Artificial Intelligence (**AAAI**).

On the Existence of Competitive Equilibria with Chores ,
Bhaskar Ray Chaudhury, Jugal Garg, Peter McGlaughlin, Ruta Mehta,
Proc. of the 13th Innovations in Theoretical Computer Science (**ITCS**).

Polynomial Time Algorithms to Find an Approximate Competitive Equilibrium for Chores ,
Shant Boodhagiannis, Bhaskar Ray Chaudhury, Ruta Mehta,
Proc. of the 33rd Symposium on Discrete Algorithms (**SODA**).

2021 **Improving EFX Guarantees through Rainbow Cycle Number**,
Bhaskar Ray Chaudhury, Jugal Garg, Kurt Mehlhorn, Ruta Mehta, Prananbendu Misra,
Proc. of the 22nd ACM Conference on Economics and Computation (**EC**),
Full version accepted in Mathematics of Operations Research (MOR) with major revision.

Fair and Efficient Allocations under Subadditive Valuations,
Bhaskar Ray Chaudhury, Jugal Garg, Ruta Mehta,
Proc. of the 35th AAAI Conference on Artificial Intelligence (**AAAI**).

Competitive Allocation of a Mixed Manna,
Bhaskar Ray Chaudhury, Jugal Garg, Ruta Mehta, Peter McGlaughlin,
Proc. of the 32nd Symposium on Discrete Algorithms (**SODA**),
Full version accepted in Mathematics of Operations Research (MOR).

2020 **EFX Exists for Three Agents**,
Bhaskar Ray Chaudhury, Jugal Garg, Kurt Mehlhorn,
Proc. of the 21st ACM Conference on Economics and Computation (**EC**),
Full version accepted in Journal of the ACM (JACM) with minor revision.

A Little Charity Guarantees Almost Envy-Freeness,
Bhaskar Ray Chaudhury, Telikepalli Kavitha, Kurt Mehlhorn, Alkmini Sgouritsa,
Proc. of the 31st Symposium on Discrete Algorithms (**SODA**),
Full version appeared in SIAM Journal on Computing (SICOMP).

2019 **Polyline Simplification has Cubic Complexity**,
Karl Bringmann, Bhaskar Ray Chaudhury,
Proc. of the the 35th Symposium on Computational Geometry (**SoCG**),
Invited to Journal on Computational Geometry (JoCG) special issue.

2018 **Sketching, Streaming and Fine-Grained Complexity of (Weighted) LCS**,
Karl Bringmann, Bhaskar Ray Chaudhury,
Proc. of the 38th Foundations of Software Technology and Theoretical Computer Science (**FSTTCS**).

Combinatorial Algorithms for General Linear Arrow-Debreu Markets,
Bhaskar Ray Chaudhury, Kurt Mehlhorn,
Proc. of the 38th Foundations of Software Technology and Theoretical Computer Science (**FSTTCS**).

On Fair Division of Indivisible Items,
Bhaskar Ray Chaudhury, Yun Kuen Cheung, Jugal Garg, Naveen Garg, Martin Hoefer, Kurt Mehlhorn,
Proc. of the 38th Foundations of Software Technology and Theoretical Computer Science (**FSTTCS**),
Full version accepted in Journal of Artificial Intelligence Research (JAIR).

Invited Talks

2022 **On the Existence of EFX Allocations**,
Colloqium Talk, Oxford University.

2021 **On the Existence of EFX Allocations**,
Colloqium Talk, Tata Institute of Fundamental Research.

On the Existence of EFX Allocations,
Workshop on Fair Resource Allocation: Concepts, Algorithms and Complexity ,
22nd ACM Conference on Economics and Computation (EC 2021), Budapest, Hungary.

2021 **Discrete Fair Division**,
Colloqium Talk, University of Illinois at Urbana-Champaign,
Part of the Illinois Computer Science Speakers Series.

2020 **On the Existence of EFX Allocations**,
Colloqium Talk, University of Cologne.

2019 **Towards Efficient Almost Envy-Free Allocations**,
Workshop on Complexity in Algorithmic Game Theory,
39th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2019), IIT Bombay.

Teaching

Seminars **Reading Group in Algorithms**,
Organizer (Summer 2019, Summer 2020),
Max Planck Institute for Informatics (MPI-INF).

Topics in Fair Division,
Organizer (Winter 2019),
Max Planck Institute for Informatics (MPI-INF).

Lectures **Computational Social Choice (CS 598)**,
Instructor (Fall 2022),
University of Illinois at Urbana Champaign (UIUC).

Algorithms (CS 473),
Instructor (Spring 2022),
University of Illinois at Urbana Champaign (UIUC).

Algorithms (CS 473),
Instructor (Fall 2021),
University of Illinois at Urbana Champaign (UIUC).

Algorithms and Data Structures,
Tutor (Winter 2016, Winter 2017),
Max Planck Institute for Informatics (MPI-INF).

Algorithmic Game Theory, Mechanism Design and Computational Economics,
Teaching Assistant (Winter 2017),
Max Planck Institute for Informatics (MPI-INF).

———— Services

PC member   FOCS'23 (invited), AAMAS'22 (invited), WINE'22 (served)

Conferences   SOSA'22, SODA'22, EC'22, ESA'21, EC'21, SODA'21, ICDCS'21, EC'20, SoCG'20, SOSA'20, ESA'20, WINE'20, IPEC'20, ICALP'19, STACS'19, ESA'19, FSTTCS'19, WINE'19, SAGT'19, SoCG'18.

Journals   ACM Transactions on Algorithms, SIAM Journal on Discrete Mathematics, Artificial Intelligence, Mathematics of Operations Research