

Rucha Kulkarni

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Interests

Algorithmic Game Theory, Fair Division, Computational Complexity

Education

- Aug'17-
Current **University of Illinois at Urbana Champaign**, *Doctoral Candidate (Expected completion date: August 2022)*, Advisor: Prof. Ruta Mehta.
- Mar'17-Jul'17 **Indian Institute of Science**, *Project Associate, CS*, Host: Prof. Siddharth Barman.
- Aug'16-
Jan'17 **Shanghai Jiao Tong University**, *Visiting Student, Computer Science Department*, Host: Prof. Xiaotie Deng.
- 2014-2016 **Indian Institute of Technology, Bombay**, *MTech in Computer Science and Engineering*, *Cumulative Grade: 9.73/10*.
Class Rank: 4/100
- 2010-2014 **Vishwakarma Institute of Technology, Pune**, *BTech with Honors in Instrumentation and Control Engineering*, *Cumulative Grade: 9.65/10*.
Class Rank: 2/80

Publications

- *On the Approximation of Fair and Efficient Allocations with Indivisible Mixed Manna*, (with Ruta Mehta and Setareh Taki), *submitted to EC '21*
- *On the PTAS for Maximin Shares in an Indivisible Mixed Manna*, (with Ruta Mehta and Setareh Taki), *to appear in the proceedings of AAAI '21*
- *Approximating Nash Social Welfare under Submodular Valuations through (Un)Matchings*, (with Jugal Garg and Pooja Kulkarni), *to appear in the proceedings of SODA 2020*
- *Nash Equilibrium in smoothed polynomial time for Network Coordination Games*, (with Shant Boodaghians and Ruta Mehta), *to appear in the proceedings of ITCS 2020, also invited for a short talk at a workshop at FOCS 2018*
- *Octahedral Tucker is PPA-Complete* (with Xiaotie Deng and Zhe Feng), preprint

Visits and Internships

- Summer '21 Research Intern at Google hosted by Kostas Kollias
- June'20 Invited for the Women in Theory workshop by Simon's Institute of Theory of Computing
- April'20, '21 Invited to the C-RAW Grad Cohort Workshop for women
- April'19 Talk at the Theory Seminar, UIUC
- STOC '18 Presented poster on 'Octahedral Tucker is PPA-Complete'
- July'17 Selected for presenting a poster at the Indian Women in Mathematics Conference at IISC'17
- May'17 Invited talk at CSE, IIT Bombay

Awards and Achievements

- 2020 Awarded the Outstanding TA award for Fall'20

- 2020 Received the Grace Hopper student scholarship
- 2017 Received the Ray Ozzie Computer Science Fellowship, awarded to promising incoming doctoral students at UIUC
- 2016 Selected for MSRI's Microsoft Research Fellowship Program 2017-19 (unfortunately had to decline, joined UIUC instead)
- 2014 Obtained All India Rank 4 out of 1,55,190 students in GATE (Graduate Aptitude Test in Engineering) in Computer Science with Score 1000/1000
- 2008 Qualified for the Indian National Astronomy Olympiad
- 2006 Awarded the MTSE (Maharashtra Talent Search Exam) Scholarship with State Rank 29 out of more than 1 lakh participants

Professional Activities

- Reviewer for FOCS, STOC, EC, ESA, ICALP, SAGT, IJGT, FSTTCS
- Fall '20 Mentor for the PURE (Promoting Undergraduate Research in Engineering) program at UIUC
- EC '20 Mentor for EC conference 2020 and its Global Outreach program
- Summer '20 Co-organized a reading group on 'Market equilibrium computation' for students at UIUC, IISc, India and Technion, Israel
- Summer '20 Organized a reading group on 'Foundations of Data Science' for students at UIUC
- Fall'19 Volunteer for the Rising Stars in EECS Workshop
- at UIUC Teaching Assistant for CS101 (for Prof. Neal Davis) and twice for CS 374 (for Prof. Sarel Har-Peled and for Prof. Chandra Chekuri). Was ranked as an excellent TA every time in the university's per semester excellent TA lists [*list 1, list 2, list 3*]
- at UIUC Part of student run reading groups on 'PCP theorem and its applications', 'Scalable Algorithms for Data and Network analysis', 'Parameterized Algorithms', 'Favorite papers and theorems'
- at IISc Part of reading groups on 'Fair division' and 'Fixed-point theorems'
- At IITB Teaching Assistant for Linear Optimization (CS750), Algorithms and Complexity (CS601), Design and Analysis of Algorithms (CS218), and Computer Programming and Utilization (CS101)
- At VIT Class Representative, 2nd and 3rd Year, VIT, Pune

Courses at UIUC

- Computational Complexity
- Combinatorial Mathematics
- Games, Markets and Mathematical Programming
- Pseudorandomness
- Randomized Algorithms
- Graduate Algorithms

Courses at IIT Bombay

- Decision Analysis and Game Theory
- Algorithms and Complexity
- Computational Complexity
- Linear Optimization
- Functional Programming
- Artificial Intelligence
- Probabilistic Models
- Applied Algorithms
- Foundations of Machine Learning
- Graduate Software Lab
- Digital Image Processing

References

- Prof. Ruta Mehta,
Assistant Professor, CS,
UIUC
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- Prof. Xiaotie Deng,
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Peking University
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- Prof. Jugal Garg,
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- Prof. Sundar Vishwanathan,
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