






Eklavya Sharma

Curriculum Vitae

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



Education

- August 2021 – Present **PhD**, *Department of Industrial & Enterprise Systems Engineering (ISE), University of Illinois at Urbana-Champaign (UIUC), IL, USA*
Research on fair resource allocation. Advised by Prof. Jugal Garg .
- July 2019 – July 2021 **M.Tech. (Research)**, *Computer Science and Automation (CSA), Indian Institute of Science (IISc), Bangalore, GPA: 9.7 / 10.0*
Did research on approximation algorithms for variants of bin packing and knapsack. Advised by Prof. Arindam Khan .
- Aug 2014 – June 2018 **B.E. (Hons) Computer Science**, *Birla Institute of Technology and Science (BITS), Pilani, India, GPA: 9.14 / 10.00*

Research Interests

Algorithms, Game theory, Packing and scheduling.

Publications

- Improving Approximation Guarantees for Maximin Share, with Hannaneh Akrami, Jugal Garg, and Setareh Taki, in EC 2024.
- Two-Player Matrix Games Repeated Until Collision, with Aniket Murhekar, in FSTTCS 2023.
- New fairness concepts for allocating indivisible items, with Ioannis Caragiannis, Jugal Garg, Nidhi Rathi, and Giovanna Varricchio, in IJCAI 2023.
- Simplification and improvement of MMS approximation, with Hannaneh Akrami, Jugal Garg, and Setareh Taki, in IJCAI 2023.
- Approximation algorithms for multidimensional packing, with Arindam Khan and K.V.N. Sreenivas, in FSTTCS 2022.
- Tight approximation algorithms for geometric bin packing with skewed items, with Arindam Khan, in Algorithmica and APPROX 2021.
- Harmonic algorithms for packing d -dimensional cuboids into bins, in FSTTCS 2021.
- An approximation algorithm for covering linear programs and its application to bin-packing [arXiv:2011.11268](#).

- Mitigating DNS amplification attacks using a set of geographically distributed SDN routers [↗](#), with Vishal Gupta, in ICACCI 2018.

Achievements

- August 2024 **Mavis Future Faculty Fellowship, UIUC** [↗](#)
- April 2024 **William A. Chittenden II Award, UIUC** [↗](#)
Given to an outstanding graduate student at ISE.
- July 2023 **Dr. MNS Swamy Medal for Best MTech (Research) Thesis, IISc** [↗](#)
- April 2023 **Sharp Outstanding Graduate Student Award, UIUC** [↗](#)
- Aug 2021 – July 2022 **Samuel Brainin Engineering Fellowship, UIUC**
- March 2018 **Graduate Aptitude Test in Engineering (GATE)**
Secured all-India rank 86 (out of approximately 100,000 candidates) in the ‘Computer Science and IT’ test.
- Aug 2014 – Dec 2015 **BITS Pilani Merit Scholarship**
Scored GPA within top 2% in three semesters.
- ACM-ICPC** [↗](#)
ACM-ICPC is an international annual multi-tiered programming contest for college students. Around 3000 teams (of 3 students each) participate in the Indian online qualifying round each year. Top few teams qualify for on-site regional contests in India.
- Dec 2017 Ranked 29 out of 250 teams in the Amritapuri regional contest.
- Dec 2016 Ranked 66 out of 450 teams in the Amritapuri regional contest.
- Dec 2016 Ranked 30 out of 70 teams in the Kharagpur regional contest.
- Dec 2015 Ranked 88 out of 250 teams in the Amritapuri regional contest.

Invited Talks

- 27 Oct 2023 **Fair allocation of indivisible items**
Capital Area Theory Seminar, University of Maryland, College Park
- 22 Dec 2022 **Existence and computation of epistemic EFX allocations** [↗](#)
Indian Institute of Science, Bangalore

Professional Service

Program committee member for AAMAS 2024 and 2025.
Subreviewer for STOC’22, SAGT’22, EC’23, IJCAI’23, ESA’23, EC’24.

Work Experience

- Spring 2024 **Teaching Assistant, IE 300: Analysis of Data, UIUC**
- Spring 2023 **Teaching Assistant, IE 310: Deterministic models in optimization, UIUC**
- Fall 2022 **Teaching Assistant, IE 300: Analysis of Data, UIUC**
- Fall 2020 **Teaching Assistant, Design and Analysis of Algorithms, IISc Bangalore**

- Aug 2018 – **Software Engineer**, *media.net*, Bangalore, India
- July 2019 *Topics*: machine learning, large-scale systems.
media.net is an advertisement-technology company. I worked on improving their machine-learning-based algorithm for bidding in real-time ad auctions.
- Jan 2018 – **Intern** ↗, *American Express*, Gurgaon, India
- June 2018 *Topics*: neural networks, machine learning, big data.
Trained a neural network to predict credit-card defaulting. The input format was unconventional, so a custom architecture was devised. Its performance was at par with the production model, which was tuned over many years.
- May 2017 – **Intern**, *Directi*, Mumbai, India
- July 2017 *Topics*: machine learning.
Made Directi's news article classification algorithm recognize more categories.
- May 2016 – **Google Summer of Code (GSoC) Student** ↗, *Zulip*
- Aug 2016 *Topics*: software development.
Zulip is an open-source group chat application. 3 students were selected from over 100 applicants to work on Zulip as part of the GSoC program.
- Annotated python code ($\sim 50,000$ lines) for use with a static type-checker.
 - Migrated code to Python 3 by switching to newer dependencies, using automated code conversion, standardizing string types, and fixing bugs.

Selected Coursework

UIUC:

- (CS 580) Algorithmic Game Theory: grade A
- (CS 598 TH1) Recent Advances in Theoretical CS: grade A+
- (CS 473) Algorithms: grade A+
- (IE 511) Integer Programming: grade A
- (IE 519) Combinatorial Optimization: grade A
- (IE 410) Advanced Stochastic Processes and Applications: grade A+
- (IE 411) Optimization of Large Systems: grade A+

IISc Bangalore:

- Approximation Algorithms: grade A+, rank 1
- Design and Analysis of Algorithms: grade A+, rank 1
- Computational Methods of Optimization: grade A+, rank 1
- Cryptography: grade A

Computer Skills

LaTeX, Python, HTML, CSS, JavaScript, C/C++, Java, SQL, Bash.

Student Societies

BITS-ACM, *BITS Pilani ACM Student Chapter*

- Problem setter for 6 programming contests organized by BITS-ACM.
- Created backends for web applications used in online quizzing events.
- Conducted intra-BITS-ACM workshops on 'Competitive Programming' and 'Linux and CLI'.