






Eklavya Sharma

Curriculum Vitae

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in [sharmaeklavya2](#)   [sharmaeklavya2](#) 

Education

August 2021 – Present **PhD**, *Department of Industrial & Enterprise Systems Engineering (ISE), University of Illinois at Urbana-Champaign (UIUC), IL, USA*
Doing research on fair division algorithms. 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, Fair division, Graph theory, Packing and scheduling

Publications

- New fairness concepts for allocating indivisible items, with Ioannis Caragiannis, Jugal Garg, Nidhi Rathi, and Giovanna Varricchio, to appear in IJCAI 2023.
- Simplification and improvement of MMS approximation, with Hannaneh Akrami, Jugal Garg, and Setareh Taki, to appear in IJCAI 2023. [arXiv:2303.16788](#) 
- Geometry meets vectors: 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

- July 2023 **Dr. MNS Swamy Medal for Best MTech (Research) Thesis** [↗](#)
- April 2023 **Sharp Outstanding Graduate Student Award**
- August 2021 **Samuel Brainin Engineering Fellowship**
– July 2022
- 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.
- 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 Amritapuri regional contest.
- Dec 2016 Ranked 66 out of 450 teams in Amritapuri regional contest.
- Dec 2016 Ranked 30 out of 70 teams in Kharagpur regional contest.
- Dec 2015 Ranked 88 out of 250 teams in Amritapuri regional contest.

Invited Talks

- 22 Dec 2022 **Existence and computation of epistemic EFX allocations** [↗](#)
Indian Institute of Science, Bangalore
- 19 Dec 2022 **Approximation algorithms for multidimensional packing** [↗](#)
FSTTCS 2022, Chennai, India
- 17 Dec 2021 **Harmonic algorithms for packing dD cuboids into bins** [↗](#)
FSTTCS 2021, Online
- 16 Aug 2021 **Algorithms for geometric bin packing with skewed items** [↗](#)
APPROX 2021, Online

Professional Service

Subreviewer for STOC 2022, SAGT 2022, EC 2023, IJCAI 2023.

Work Experience

- 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 real-time bidder.

- 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 (~ 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 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, C/C++, Java, HTML, CSS, JavaScript, 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'.