

Eklavya Sharma

Curriculum Vitae

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Education

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

Papers

Arindam Khan and Eklavya Sharma. Tight Approximation Algorithms For Geometric Bin Packing with Skewed Items. In *APPROX*, volume 207, pages 22:1–22:23, 2021. doi:10.4230/LIPIcs.APPROX/RANDOM.2021.22.

Eklavya Sharma. Harmonic Algorithms for Packing d-Dimensional Cuboids into Bins. In *FSTTCS*, volume 213, pages 32:1–32:22, 2021. doi:10.4230/LIPIcs.FSTTCS.2021.32.

Arindam Khan, Eklavya Sharma, and K. V. N. Sreenivas. Geometry meets vectors: Approximation algorithms for multidimensional packing, 2021. arXiv:2106.13951.

Eklavya Sharma. An approximation algorithm for covering linear programs and its application to bin-packing, 2020. arXiv:2011.11268.

Vishal Gupta and Eklavya Sharma. Mitigating DNS amplification attacks using a set of geographically distributed SDN routers. In *2018 International Conference on Advances in Computing, Communications and Informatics (ICACCI-2018)*, Bangalore, India, September 2018. doi:10.1109/ICACCI.2018.8554459.

Projects

- Jan 2020 – **Approximation Algorithms for Geometric Packing Problems** ☞.
Present *Topics:* approximation algorithms, bin packing.
Supervisor: Prof. Arindam Khan ☞, CSA, IISc Bangalore.
- Sept 2017 – **Mitigating DNS-related DoS attacks using SDN** ☞.
Dec 2017 *Topics:* computer networks, network security, SDN.
Supervisor: Prof. Vishal Gupta, BITS Pilani.
Devised a new mechanism for mitigating DNS Amplification attacks, which uses a set of geographically-distributed SDN routers. Presented this work at ICACCI ☞ in September 2018.

Work Experience

- Oct 2020 – **Teaching Assistant**, *Design and Analysis of Algorithms*, IISc Bangalore.
Jan 2021
- Aug 2018 – **Platform 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.

Achievements

BITS-Pilani Merit Scholarship.

Scored GPA within top 2% in three semesters.

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.

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.

Computer Skills

L^AT_EX, Python, C/C++, Java, HTML, CSS, JavaScript, 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’.