Eklavya Sharma

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INTERESTS

- Algorithms
- Approximation algorithms
- Online algorithms

EDUCATION

IISC BANGALORE
M.Tech. (Research) in CS
July 2019 – Present
Bangalore, India
GPA: 9.7 / 10.0

BITS PILANI
BE in Computer Science
August 2014 – June 2018
Pilani, Rajasthan, India
GPA: 9.14 / 10.00

LINKS

Github: sharmaeklavya2
LinkedIn: sharmaeklavya2
Codeforces: eku
ICPCID: 5CN1FMJ0JIDP

SKILLS

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

COURSEWORK

IISC BANGALORE
Approximation Algorithms,
Design and Analysis of Algorithms,
Computational Methods of Optimization,
Cryptography

ACHIEVEMENTS

BITS-Pilani Merit Scholarship
(GPA within top 2% in three semesters)
GATE India rank 86
ACM-ICPC regional ranks:

- Amritapuri 2017: 29/250.
- Amritapuri 2016: 66/450.
- Kharagpur 2016: 30/70.
- Amritapuri 2015: 88/250.

PROJECTS

ALGORITHMS FOR PACKING PROBLEMS Jan 2020 – Present
Supervisor: Prof. Arindam Khan, IISc Bangalore.

- Designed algorithms for a generalization of geometric and vector bin-packing.
- Designed an approx algorithm for d-dimensional geometric bin-packing when items can be rotated. This gives the best-known approx factor for $d \geq 3$.
- Worked on the online knapsack problem in the random-order model.

MITIGATING DNS-BASED DOS ATTACKS Sept 2017 – Dec 2017
Supervisor: Prof. Vishal Gupta, BITS Pilani.

- Devised a mechanism for mitigating DNS amplification attacks.
- Presented this work at ICACCI in Sept 2018.

PAPERS

- Harmonic algorithms for packing d-dimensional cuboids into bins. arXiv:2011.10963.
- Geometry meets vectors: approximation algorithms for multidimensional packing (with Arindam Khan and KVN Sreenivas).
- An approximation algorithm for covering linear programs and its application to bin-packing. arXiv:2011.11268.
- Analysis of the harmonic function used in bin-packing. arXiv:2011.11618.
- Mitigating DNS amplification attacks using a set of geographically distributed SDN routers. In ICACCI-2018, Bangalore (with Vishal Gupta). doi:10.1109/ICACCI.2018.8554459.

WORK EXPERIENCE

CSA, IISC BANGALORE | Teaching Assistant
October 2020 – Jan 2021
Teaching assistant for the course 'Design and Analysis of Algorithms'.

MEDIA.NET | Platform Engineer
August 2018 – July 2019 | Bangalore, India
Worked on media.net's real-time bidder for online advertisement.

AMERICAN EXPRESS | Intern
Jan 2018 – June 2018 | Gurgaon, India
Trained a neural network to predict credit-card defaulting. The data was oddly-structured, so a custom architecture was devised. Its performance was at par with the production model, which was tuned over many years.

DIRECTI | Intern
May 2017 – July 2017 | Mumbai, India
Made Directi's news article classification algorithm recognize more categories.

ZULIP | Google Summer of Code student
May 2016 – Aug 2016
Ported Zulip's code to Python 3 + mypy.