








Shivam Gupta

Prime Minister Research Fellow

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EDUCATION

INDIAN INSTITUTE OF TECHNOLOGY ROPAR | PRIME MINISTER RESEARCH FELLOW

September 2020 – Current | Punjab, India

- Direct Ph.D. (CSE) research scholar under the guidance of Dr. Shweta Jain.
- **Thesis Title:** Fair Algorithms for Machine Learning.
- **Cum. GPA:** 8.75/10.0

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY SONEPAT, INDIA (MENTOR & CAMPUS NIT KURUKSHETRA) | B.Tech (IT)

August 2016 – May 2020 | Punjab, India

- B.Tech project under the guidance of Dr. Virender Ranga.
- **Major Project Title:** 1) Healthcare system for Epilepsy seizure prediction.
- **Minor Project Title:** Pathological analysis of blood cells using deep learning.
- **Cum. GPA:** 9.6216/10.0 (Rank 1)

CENTRAL BOARD OF SECONDARY EDUCATION (CBSE) | XIIth | 2016 | 94.20%

CENTRAL BOARD OF SECONDARY EDUCATION (CBSE) | Xth | 2014 | 10.0/10.0

EXPERIENCE

INDIAN INSTITUTE OF TECHNOLOGY ROPAR | PRIME MINISTER RESEARCH FELLOW

September 2020 – Current | Punjab, India

Teaching Assistant: Introduction to computing & DS for AY2020-II, Data mining for AY2021-I, Game theory (GT) for AY2021-II, Mathematical Foundation of CS for AY2022-I, Algorithmic Game Theory and Topics in AI for AY2023-II, Machine learning for AY2022-II/AY2023-I/AY2024-I.

GURU NANAK DEV ENGINEERING COLLEGE, LUDHIANA, INDIA | GUEST LECTURER

Jan 2021 – Current | PMRF Teaching Deliverable

AURIBISES TECHNOLOGIES PVT. LTD., LUDHIANA, INDIA | CERTIFIED TRAINEE

May 2018 – July 2018 | Python & Machine learning

May 2017 – July 2017 | Java EE

May 2016 – July 2016 | Android application

GAWDS, NIT KURUKSHETRA | BACKEND DEVELOPER | SEP 2016 – JULY 2020

PROJECTS

ANDROID APP DEVELOPMENT

- **Decision Support System for Whitefly (DSSWFLY):** An Android project under the guidance of professors at Punjab Agricultural University to help farmers predict Whitefly Disease in Cotton Crop on the basis of the weather forecast.
- **Solar Powered Farm:** An android-based Project under the guidance of professors at Punjab Agricultural University to help farmers in setting up Solar Powered Farms.
- **AnandVihar Society Mobile Application:** Designed an android-based platform for cooperative housing society – AnandVihar, Ludhiana, Punjab to manage all types of basic day-to-day functions like member registration, plot transfer, society fees manager for members, printing list of plot holders, online complaint manager and many more.

WEB DEVELOPMENT

- **Skillcart:** Web Portal to bring laborers and customers to one place and help connect with each other. Further integrated Aadhar Validation, SMS API, and SHA Encryptions. Technologies: JAVA EE, MySQL, Bootstrap, and JS.
- **e-Commerce:** Development of eCommerce website working using Hibernate (JAVA EE), HTML, and CSS.
- **e-library System:** Library Management System developed using JSP, MySQL, HTML, CSS, and JavaScript.
- **AnandVihar Society Web Portal:** Designed a web portal using PHP for the society similar to an android application.
- **Food Ordering System:** A PHP, bootstrap-based web portal for online food ordering company where customers order, pay cash on delivery / online, add items to cart. Restaurants can register at the portal, add, modify, and delete food items in their menus, and see present order details like order list, delivery address, contact, payment details.
- **CabHatke:** Python GUI project to estimate cab prices using Google's Geocoder API and UBER's API.

SKILLS

PROGRAMMING

• C/C++ • Java • Python • JavaEE
• MySQL • Android • HTML / CSS
• Linux • L^AT_EX • Spring • Node.js
• Hibernate • Tensorflow • Pytorch
• Javascript • jQuery

TOOLS/PLATFORMS

• Github • Overleaf • Heroku
• Google dialog flow (api.ai)
• Google firebase

HONORS

BEST PAPER AWARD

CONFERENCE ON DEPLOYABLE AI

2022 | RBCDSAI-FCAI, IIT Madras, India

Efficient Algorithms for Fair Clustering with a New Fairness Notion

BEST PAPER AWARD

INTERNATIONAL CODS-COMAD

2024 | IIIT Bangalore, India

Online Algorithm for Clustering with Capacity Constraints

SELECTED FOR ACM PINGALA INTERACTIONS IN COMPUTING

RESEARCH NETWORKING EVENT

2024 | IIIT Bangalore, India

One of 45 stellar participants (PhD student/ faculty / industry)

INTERNATIONAL TRAVEL GRANT

SERB, GOVERNMENT OF INDIA

For attending the European Conference on AI 2023.

INDOML TRAVEL GRANT AWARD

INDIAN SYMPOSIUM ON ML

2022/2023 | IIT Gandhinagar/Bombay, India

ACML STUDENT SCHOLARSHIP

ASIAN CONFERENCE ON ML

2022 | IIT Hyderabad, India

GATE (CS) QUALIFIED

Score 562 | All India Rank 2562

PASSED CAMBRIDGE ESOL TEST

UNIVERSITY OF CAMBRIDGE, UK

Preliminary and Key English Test

PUBLICATIONS

JOURNALS

- [J1.] **Shivam Gupta**, Ghalme, G., Krishnan, N. C., and Jain, S. Efficient algorithms for fair clustering with a new notion of fairness. Data Mining and Knowledge Discovery (2023), 1–39 (**Impact factor 5.406**). <https://doi.org/10.1007/s10618-023-00928-6>
- [J2.] **Shivam Gupta**, Kaur, K., and Jain, S. : Improved matrix factorization for mitigating popularity bias in recommender systems. Journal of Intelligent Information Systems (2023), 1–26 (**Impact Factor 3.4**). <https://doi.org/10.1007/s10844-023-00817-w>
- [J3.] Chowdhury, R. R., **Shivam Gupta**, and Chede, S. World war iii analysis using signed social networks. Social Network Analysis and Mining 11 (2021), 1–16 (**Impact factor 3.87**) (**Equal Contribution**). <https://doi.org/10.1007/s13278-021-00822-3>
- [J4.] Ranga, V., **Shivam Gupta**, Agrawal, P., and Meena, J. Pathological analysis of blood cells using deep learning techniques. Recent Advances in Computer Science and Communications (Formerly: Recent Patents on Computer Science) 15, 3 (2022), 397–403 (**Scopus Indexed**). <https://doi.org/10.2174/2666255813999200904113251>
- [J5.] **Shivam Gupta**, Ranga, V., and Agrawal, P. Epilnet: A novel approach to iot based epileptic seizure prediction and diagnosis system using artificial intelligence. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal 10, 4 (2021), 435–452 (**E-SCI Indexed**). <https://doi.org/10.14201/ADCAIJ2021104435452>
- [J6.] Ranga, V., **Shivam Gupta**, Meena, J., and Agrawal, P. Automated human mind reading using eeg signals for seizure detection. Journal of Medical Engineering & Technology 44, 5 (2020), 237–246 (**Web of Science Indexed**) (**Corresponding Author**).
- [J7.] **Shivam Gupta**, Meena, J., and Gupta, O. Neural network based epileptic eeg detection and classification. ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal 9, 2 (2020), 23–32 (**E-SCI Indexed**). <https://doi.org/10.14201/ADCAIJ2020922332>
- [J8.] Sachdeva, H., **Shivam Gupta**, Anushka, Khushbu, and Dave, M. Improving privacy and security in unmanned aerial vehicles network using blockchain. arXiv preprint arXiv:2201.06100 (2022) (**Accepted in Int. J. of Communication Networks and Distributed Systems**) (**Corresponding Author**).

CONFERENCES

- [C1.] **Shivam Gupta**, Ghalme, G., Krishnan, N. C., and Jain, S. Group fair clustering revisited – notions and efficient algorithm. International Conference on Autonomous Agents and Multiagent Systems (2023) (Extended Abstract) (**CORE A* Conference**).
- [C2.] Makkar, J., Bhumika, Jain, S., and **Shivam Gupta**. MFC: A multishot approach to federated data clustering. European Conference on Artificial Intelligence (ECAI) (2023), 1672 – 1679 <https://doi.org/10.3233/FAIA230451> (**CORE A Conference**)
- [C3.] Singh, M., Kancheti, S. S., **Shivam Gupta**, Ghalme, G., Jain, S., and C. Krishnan, N. Algorithmic recourse based on user's feature-order preference. In Joint International Conference on Data Science & Management of Data (CODS-COMAD) (2023), pp. 293–294 (Extended Abstract). <https://doi.org/10.1145/3570991.3571039>
- [C4.] **Shivam Gupta**, Jain, S., Krishnan, N. C., Ghalme, G., and Hemachandra, N. Online algorithm for clustering with capacity constraints. In Joint International Conference on Data Science & Management of Data (CODS-COMAD) (2024) (Extended Abstract). (**Best Paper Award, Runner's Up**).
- [C5.] **Shivam Gupta**, Ghalme, G., Krishnan, N. C., and Jain, S. Efficient algorithms for fair clustering with a new notion of fairness. Conference on Deployable AI, RBCDSAI-FCAL, IIT Madras (2022) (**Best Paper Award**).

BOOK CHAPTERS

- [B1.] **Shivam Gupta**, Jain, S., Ghalme, G., Krishnan, N. C., and Hemachandra, N. Group and individual fairness in clustering algorithms. Book Chapter accepted on AI and Ethics, Springer (2023) (**Accepted**)

WORKSHOPS

- [W1.] **Shivam Gupta**, Ghalme, G., Krishnan, N. C., and Jain, S. Group fair clustering revisited – notions and efficient algorithm. Workshop on Games, Agents and Incentives (GAIW), AAMAS 2023 (2023) (Full paper). (**Accepted**)

SYMPOSIUMS/ WORKSHOPS/ CERTIFICATIONS

- 2023:** • Attended AAMAS 2023 (CORE A*) Conference in London, United Kingdom, and ECAI 2023 (CORE A) Conference in Krakow, Poland.
- 2022-21:** • Attended Indian Symposium (IndoML) 2022 and Asian Conference on Machine Learning (ACML) 2022. Attended Indian Symposium (IndoML) 2021. Got shortlisted to attend Google Research Symposium 2021 for Ph.D students in the Asia-Pacific region.
- 2020:** • Completed Data Analysis with Python: Zeros to Pandas course by Jovian.ml, ATAL FDP on Data Sciences, Quantum Computing, and Data Sciences.
- Attended a 5-day workshop on Blockchain and NLP using Python.

ACHIEVEMENTS/ PROFESSIONAL SERVICES

Reviewer: Journal of Super Computing (Springer), Computer in Biology & Medicine (Elsevier), ECML-PKDD 2022 Conference, ICJAI 2023.

- 2023:** • Awarded with International Travel Scheme, SERB, Government of India to travel to ECAI Conference 2023.
- 2022:** • Awarded with Best Paper Award for Efficient algorithms for fair clustering, Conference on Deployable AI.
- 2019:** • Got placement as a Software Engineer (SE) at MAQ Software (a Partner Company of Microsoft Corporation) and as a Software Development Engineer (SDE) at Accolite Pvt. Ltd. (Client Company to Morgan Stanley).
- 2016:** • Cleared Joint Entrance Examination (JEE) Mains 2016. • School Topper in Mathematics XIIth Examination conducted by CBSE.

REFERENCES

Dr. Shweta Jain, Assistant Professor, Indian Institute of Technology Ropar, India. ✉ shwetajain@iitrpr.ac.in (**Ph.D. Supervisor**)

Dr. Narayanan C Krishnan, Associate Professor, Indian Institute of Technology Palakkad, India. ✉ ckn@iitpkd.ac.in (**Research Collaborator**)

Dr. Ganesh Ghalme, Assistant Professor, Indian Institute of Technology Hyderabad, India. ✉ ganeshghalme@ai.iith.ac.in (**Research Collaborator**)

Dr. Nandyala Hemachandra, Professor, Indian Institute of Technology Bombay, India. ✉ nh@iitb.ac.in (**Research Collaborator**)

Dr. Virender Ranga, Associate Professor, Delhi Technological University. (On Leave NIT Kurukshetra) ✉ virender.ranga@nitkkr.ac.in (**B.Tech Supervisor**)

Ishant Kumar, CEO, Auribises Technologies, Ludhiana, Punjab, India. ✉ ishant.kumar@auribises.com ☎ +91-9915571177 (**Training Supervisor**)