

RESEARCH INTERESTS Scalable Algorithms for Data Science, Dimension Reduction/Sketching Algorithms, Randomized Numerical Linear Algebra, Machine Learning.

WORK EXPERIENCE **Postdoctoral Research Associate** August 2024 -
Wake Forest University,
Winston-Salem, North Carolina, United States.

EDUCATION **Ph.D. Scholar** February 2019 - June 2024
Indian Institute of Technology Mandi,
Himachal Pradesh, India. CGPA: 9.5/10

Master of Science in Applied Mathematics August 2016 - June 2018
Indian Institute of Technology Mandi,
Himachal Pradesh, India. CGPA: 8.8/10

Bachelor of Science (B.Sc.) August 2012 - June 2015
Himachal Pradesh University, Shimla, India. Percentage: 63.75%
(In top 10% in the class)

JOURNAL PUBLICATIONS

1. *Improving LSH using Tensorized Random Projection*. **Bhisham Dev Verma**, Rameshwar Pratap. *Acta Informatica* 62.1 (2025): 1-35.
2. *An ant interaction scheme-based wrapper strategy for hyperspectral band selection*. Kamal Deep, **Bhisham Dev Verma**, Manoj Thakur. *Infrared Physics & Technology* (2025): 105726.
3. *Improving Compressed Matrix Multiplication using Control Variate Method*. **Bhisham Dev Verma**, Punit Pankaj Dubey, Rameshwar Pratap, Manoj Thakur. *Information Processing Letters* (2024): 106517.
4. *Sparsifying Count Sketch*. **Bhisham Dev Verma**, Rameshwar Pratap and Punit Pankaj Dubey. *Information Processing Letters* (2024): 106490.
5. *Unbiased Estimation of Inner Product via Higher Order Count Sketch*. **Bhisham Dev Verma**, Rameshwar Pratap and Manoj Thakur. *Information Processing Letters* 183 (2023): 106407.
6. *Variance reduction in Feature Hashing using MLE and Control Variate Method*. **Bhisham Dev Verma**, Rameshwar Pratap, and Manoj Thakur. *Machine Learning* 111.7 (2022).
7. *Efficient Binary Embedding of Categorical Data*. **Bhisham Dev Verma**, Rameshwar Pratap and Debajyoti Bera. *Data Mining and Knowledge Discovery* 36.2 (2022): 537-565.
8. *Dimensionality Reduction for Categorical Data*. Debajyoti Bera, Rameshwar Pratap, and **Bhisham Dev Verma**. *IEEE Transactions on Knowledge and Data Engineering* (2021).
9. *QUINT: Node embedding using network hashing*. Debajyoti Bera, Rameshwar Pratap, **Bhisham Dev Verma**, Biswadeep Sen, and Tanmoy Chakraborty. *IEEE Transactions on Knowledge and Data Engineering* (2021).
10. *Parallel multi-agent real-coded genetic algorithm for large-scale black-box single-objective optimisation*. Andranik S Akopov, Levon A Beklaryan, Manoj Thakur, **Bhisham Dev Verma**. *Knowledge-Based Systems* 174 (2019): 103-122.

CONFERENCE PUBLICATIONS

11. *Improving Sign-Random-Projection via Count Sketch*. Punit Pankaj Dubey, **Bhisham Dev Verma**, Rameshwar Pratap, and Keegan Kang. *In the 38th Conference on Uncertainty in Artificial Intelligence (UAI)*, pages 599-609, 2022.
12. *Improving Tug-of-War sketch using Control-Variates method*. Rameshwar Pratap, **Bhisham Dev Verma**, and Raghav Kulkarni. *In the SIAM Conference on Applied and Computational Discrete Algorithms (ACDA21)*, pages 66-76, 2021.

TEACHING EXPERIENCE

- Teaching Assistant at IIT Mandi in Applied Mathematical Programming (Aug-Dec 2023), Probability & Statistics (Feb-July 2023), Computational Financial Modelling (Feb-July 2022, Aug-Dec 2020), Matrix Computations for Data Science (Aug-Dec 2021), Statistical Foundations of Data Science (Feb-July 2021), Programming Practicum (Feb-July 2020), Data Science 1 (Aug-Dec 2019), Optimization Techniques (Feb-June 2019).

CONFERENCE TALKS

- “*Improving Tug-of-War sketch using Control-Variates method*” at SIAM Conference on Applied and Computational Discrete Algorithms (ACDA21), July, 2021.

WORKSHOP & SUMMER SCHOOLS

- Attended Workshop on Algorithms under Uncertainty (16-17 Dec 2022) organised by the Department of Computer Science and Engineering, Indian Institute of Technology Madras, Chennai, India.
- Attended Research Week with Google organised by Google Research India, Feb 8-11, 2022.
- Attended Google Research India Graduate Symposium, April 7-9, 2021.
- Attended IFCAM Summer School Workshop 2019 on Mathematics For Data Science organised by IISc Bangalore.
- Attended Summer Program in Mathematics - 2017 organised by HRI-Allahabad.

HONORS AND AWARD

- Awarded Best Teaching Assistant Award - 2021 by Indian Institute of Technology Mandi in recognition of contribution in the preparation of assignments and clearing doubts of the students in the Data Science 1 course.
- Awarded Outstanding Academic Achievement Award for academic excellence among the graduating batch of MSc Applied Mathematics students in the year 2018.
- Qualified Graduate Aptitude Test in Engineering (GATE) 2018 in Mathematics.
- Awarded Merit cum Mean Scholarship by “IIT Mandi” for the period of one year, from August 2016 to July 2017.

TECHNICAL SKILLS

C, Python, Matlab, LaTeX.

WEB LINKS

[Homepage](#), [Google Scholar](#)

REFERENCES

- Dr. Grey Ballard, Associate Professor in the Department of Computer Science at Wake Forest University. *E-mail*: ballard@wfu.edu
- Dr. Rameshwar Pratap, Assistant Professor in the Department of Computer Science and Engineering at IIT Hyderabad. *E-mail*: rameshwar@cse.iith.ac.in
- Prof. Manoj Thakur, Professor in the School of Mathematical & Statistical Sciences at IIT Mandi. *E-mail*: manoj@iitmandi.ac.in