

RESEARCH  
INTERESTS

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

## EDUCATION

**Ph.D. Scholar**

Indian Institute of Technology Mandi,  
Himachal Pradesh, India.

February 2019 - June 2024

CGPA: 9.5/10

**Master of Science in Applied Mathematics**

Indian Institute of Technology Mandi,  
Himachal Pradesh, India.

August 2016 - June 2018

CGPA: 8.8/10

**Bachelor of Science (B.Sc.)**

Himachal Pradesh University, Shimla, India.

August 2012 - June 2015

Percentage: 63.75%

(In top 10% in the class)

JOURNAL  
PUBLICATIONS

1. *Improving Compressed Matrix Multiplication using Control Variate Method.* **Bhisham Dev Verma**, Punit Pankaj Dubey, Rameshwar Pratap, Manoj Thakur. *Information Processing Letters* (2024): 106517.
2. *Sparsifying Count Sketch.* **Bhisham Dev Verma**, Rameshwar Pratap and Punit Pankaj Dubey. *Information Processing Letters* (2024): 106490.
3. *Unbiased Estimation of Inner Product via Higher Order Count Sketch.* **Bhisham Dev Verma**, Rameshwar Pratap and Manoj Thakur. *Information Processing Letters* 183 (2023): 106407.
4. *Variance reduction in Feature Hashing using MLE and Control Variate Method.* **Bhisham Dev Verma**, Rameshwar Pratap, and Manoj Thakur. *Machine Learning* 111.7 (2022).
5. *Efficient Binary Embedding of Categorical Data.* **Bhisham Dev Verma**, Rameshwar Pratap and Debajyoti Bera. *Data Mining and Knowledge Discovery* 36.2 (2022): 537-565.
6. *Dimensionality Reduction for Categorical Data.* Debajyoti Bera, Rameshwar Pratap, and **Bhisham Dev Verma**. *IEEE Transactions on Knowledge and Data Engineering* (2021).
7. *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).
8. *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

9. *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.*
10. *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	<ul style="list-style-type: none"> <li>• “<i>Improving Tug-of-War sketch using Control-Variates method</i>” at SIAM Conference on Applied and Computational Discrete Algorithms (ACDA21), July, 2021.</li> </ul>
WORKSHOP & SUMMER SCHOOLS	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Attended Research Week with Google organised by Google Research India, Feb 8-11, 2022.</li> <li>• Attended Google Research India Graduate Symposium, April 7-9, 2021.</li> <li>• Attended IFCAM Summer School Workshop 2019 on Mathematics For Data Science organised by IISc Bangalore.</li> <li>• Attended Summer Program in Mathematics - 2017 organised by HRI-Allahabad.</li> </ul>
HONORS AND AWARD	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Awarded Outstanding Academic Achievement Award for academic excellence among the graduating batch of MSc Applied Mathematics students in the year 2018.</li> <li>• Qualified Graduate Aptitude Test in Engineering (GATE) 2018 in Mathematics.</li> <li>• Awarded Merit cum Mean Scholarship by “IIT Mandi” for the period of one year, from August 2016 to July 2017.</li> </ul>
TECHNICAL SKILLS	C, Python, Matlab, LaTeX.
WEB LINKS	<a href="#">Homepage</a> , <a href="#">Google Scholar</a>
REFERENCES	<ul style="list-style-type: none"> <li>• Dr. Rameshwar Pratap, Assistant Professor in the Department of Computer Science and Engineering at IIT Hyderabad. <i>E-mail</i>: rameshwar@cse.iith.ac.in</li> <li>• Prof. Manoj Thakur, Professor in the School of Mathematical &amp; Statistical Sciences at IIT Mandi. <i>E-mail</i>: manoj@iitmandi.ac.in</li> </ul>