

# BHISHAM DEV VERMA

IIT Mandi - 175005  $\diamond$  Himachal Pradesh  
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## RESEARCH INTEREST

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A Ph.D. scholar interested in optimization, machine learning, sketching algorithms and data mining.

## EDUCATION

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<b>Indian Institute of Technology, Mandi</b> Ph.D. Scholar	<i>Feb-2019 - Present</i> CGPA: 9.38/10
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<b>Indian Institute of Technology, Mandi</b> Master of Science in Applied Mathematics	<i>August 2016 - 2018</i> CGPA: 8.8/10
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<b>Vallabh Government College, Mandi</b> Bachelor of Science	<i>August 2012 - 2015</i> Percentage: 63.75%
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## PUBLICATIONS

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- **Variance reduction in Feature Hashing using MLE and Control Variate Method.** Bhisham Dev Verma and RameshwarPratap. (Submitted)
- **Efficient Binary Embedding of Categorical Data.** Bhisham Dev Verma, Rameshwar Pratap and Debajyoti Bera. (Submitted).
- **Dimensionality Reduction for Categorical Data.** Debajyoti Bera, Rameshwar Pratap, and Bhisham Dev Verma. (Submitted).
- **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.

## PROJECTS

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<b>Practical Portfolio Optimization using Heuristic Techniques</b> <i>Advisor: Dr. Manoj Thakur, Associate Professor, SBS, IIT Mandi</i>	August 2017 - June 2018 <i>Master's Thesis</i>
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- Modified NSGA-2 algorithm for Practical Portfolio problem and implemented that algorithm to solve Portfolio Optimization problems in C/C++.

<b>Portfolio Optimization using Differential Evolution</b> <i>Advisor: Dr. Manoj Thakur, Associate Professor, SBS, IIT Mandi</i>	Winter Intern-2017
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- Studied and Implemented Differential Evolution algorithm to solve Portfolio Optimization problems in C/C++.

<b>Implmentation of Transportation Problem in C/C++</b> <i>Advisor: Dr. Manoj Thakur, Associate Professor, SBS, IIT Mandi</i>	Summer Intern-2017
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- A code package for solving transportation problem is built. Implemented Northwest corner rule, Least Cost method, Vogel's approximation method to get feasible solution followed by MODI method to get optimal solution in C/C++.

- The output is a  $\text{\LaTeX}$ code which on compilation gives a stepwise solution.

### **Implementation of Classifiers in Python**

Spring - 2017

*Pattern Recognition, Instructor: Dr. Dileep A.D., Assistant Professor, SCEE, IIT Mandi*

- Bayes Classifier using GMM, K-nearest neighbor method for class-conditional density estimation using DTW distance, Discrete HMM in Python 3.
- Fisher linear Discriminant Analysis (FDA), Perceptron Based Classifier, SVM based Classifier using linear kernel, Polynomial kernel and Gaussian Kernel in Python 3.

### **Eigenfaces for Face Detection**

Spring - 2017

*Matrix Theory, Instructor: Dr. Siddhartha Sarma, Assistant Professor, SCEE, IIT Mandi*

- Computed Eigenfaces using PCA for face detection in Python 3.

## **TECHNICAL STRENGTHS**

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### **Computer Languages**

C/C++, PYTHON, MATLAB

### **Software & Tools**

$\text{\LaTeX}$ , MS-Office

## **WORKSHOP & SUMMER SCHOOLS**

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- IFCAM Summer School Workshop 2019 on Mathematics For Data Science, IISc Bangalore.
- IEEE CIS Summer School Workshop on Computational Intelligence : Tools and Techniques for Smart Grid Solutions, IIT Delhi-2017.
- Summer Program in Mathematics-2017, HRI-Allahabad.

## **RELEVANT COURSES**

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Applied Mathematical Programming  
Optimization Techniques  
Pattern Recognition  
Probability & Statistics  
Programming Practicum  
Probability and Random Process

Linear Algebra  
Heuristic Optimization  
Matrix Theory  
Numerical Analysis  
Soft Computing

## **ACHIEVEMENTS**

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- Outstanding Academic Achievement Award for academic excellence among the graduating batch of MSc Applied Mathematics students in the year 2018.
- GATE-2018 - Mathematics.
- IIT-JAM 2016 - Mathematics.

## **REFERENCES**

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### **Dr. Manoj Thakur**

Associate Professor  
School Of Basic Sciences  
IIT Mandi-175005  
E-mail id: manoj@iitmandi.ac.in

### **Dr. Rameshwar Partap**

Assistant Professor  
School of Computing and Electrical Engineering  
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