Akshay Kaplesh

CONTACT INFORMATION

Programmer Analyst
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RESEARCH INTERESTS

Computer Vision, Image Processing, Machine Learning, Data Science, Statistics

EDUCATION

Indian Institute of Technology Kanpur, India 2017

- M.Tech in GeoInformation, Department of Civil Engineering
  - Cumulative Performance Index (CPI) of 8.3/10
- B.Tech in Civil Engineering
  - Cumulative Performance Index (CPI) of 8.4/10

D.A.V. Public School (CBSE Board)

- 12^{th} Grade (All India Senior School Certificate Examination) 2012
  - Scored 85%

D.A.V. Public School (CBSE Board)

- 10^{th} Grade (All India Secondary School Examination) 2010
  - Cumulative GPA of 9.0/10

SCHOLASTIC ACHIEVEMENTS

- Ranked in Top-10 among 105 students in the Department for B.Tech
- Recipient of the Donor's Scholarship for being amongst the best academic performers among 800 students across all departments
- Ranked in Top 1% (amongst 0.5 million students) in IIT-JEE (Joint Entrance Exam) 2012
- Placed in Top 0.1% (amongst over 1.25 million students) in AIEEE (All India Engineering Entrance Exam) 2012

MASTER'S THESIS

Feature Based Learning for Fusion of Remote Sensing Images May'16-June'17
Advisor: Dr. Onkar Dikshit, Department of Civil Engineering, IIT Kanpur

- Developed models for information retrieval in snow covered areas using machine learning algorithms
- Implemented models using different algorithms like neural networks, dictionary learning were compared over different satellite dataset
- Analyzed results based on visual & statistical parameters, and classification performance using random forest classifier
- Contributed to the central government project for modelling of snow hydrological potential using satellite data

PUBLICATION

A. Kaplesh, D. Varade, O. Dikshit, "Feature based learning towards fusion of remote sensing images for information retrieval in snow covered areas", submitted to *Information Fusion, Elsevier*, 2017 (currently under review)

INDUSTRIAL EXPERIENCE

Quantum Phinance Consulting, Mumbai India July'17-Present
Financial Technology

- Developed and implemented process automation framework to automate business operation processes
- Worked on Software architect of a comprehensive corporate Asset Liability Management software that involves maintaining, analyzing, optimizing and accounting for the Non-banking financial firms
- Involved with client specific project scoping and implementation, overall performance optimization and new features building for the solutions

COURSE PROJECTS

MCMC Algorithms Jan-Apr'17
Mentor: Dr. Avijit Khanra, Dept. of Industrial Management and Engineering, IIT Kanpur
Course: Statistical Simulation and Data Processing

- Programmed model applications of Markov Chain Monte Carlo techniques for different illustrations
- Investigated different models like Bayesian stochastic model, Bayesian linear regression, and binomial model from MCMC perspective

Multiobjective Optimization using Genetic Algorithms Jan-Apr'16
Mentor: Dr. Ketan Rajawat, Dept. of Electrical Engineering, IIT Kanpur
Course: Convex Optimization in Signal Processing and Communication

- Solved 0-1 Multiple knapsack problem, which is an NP-hard real world problem, using Simple Evolutionary Algorithm
- Implemented algorithms like MOEA-D and NSGA-II/DE on various standard problems and concluded that MOEA-D performs better

Customer Churn Prediction May-July'16
Mentor: Dr. Faiz Hamid, Dept. of Industrial Management and Engineering, IIT Kanpur
Course: Data mining & Knowledge discovery

- Predicted number of customers who are going to defect (churn) to another cellular network provider company
- Implemented techniques like Ensemble Method, Neural Networks, Decision Tree, Random Forest and SVM on dataset of over 70000 records

Statistical Analysis of Data and Anomaly Detection Jan-Apr'15
Mentor: Dr. Subhra Sankar Dhar, Dept. of Mathematics, IIT Kanpur
Course: Statistical Simulation and Data Analysis

- Fitted multi-normal distribution on a large dataset containing 25000 records of heights and weights for hypothesis testing
- Computed goodness of fit using various test statistics and removed anomalies and misspelled data from the dataset

Least Square Collocation Aug-Nov'15
Mentor: Dr. Onkar Dikshit, Dept. of Civil Engineering, IIT Kanpur
Course: Geospatial Data Processing

- Employed least square collocation as a method of prediction, filtering and modelling in statistical geodesy
- Implemented it on coordinate transformation problem in photogrammetry and found it to be more accurate than traditional least square

INTERNSHIP/ RESEARCH EXPERIENCE

Softech Engineers, Pune India *May-July'15*
Software Development

- Discovered land corruption in Pune area by integrating different layers of spatial and attribute data as provided by Pune Municipal Corporation
- Reclassified data for compatible use with database which was further projected over the Google maps for better visual comprehensibility
- Developed model laid ground work in this area and was used in governmental public works and procurement management

Summer Research Internship, GeoInformatics Lab, IIT Kanpur *Jan-Apr'15*
Image Processing

- Identified an effective clustering technique for a given data set of image which contains more than 1000 bands
- Evaluated various algorithms out of which Fuzzy C means worked out best in terms of time complexity and image homogeneity
- Created GUI to implement various algorithms using MATLAB and studied factors upon which the behaviour pattern of algorithms depends

RELEVANT COURSES

Mathematics: Stochastic Process, Convex optimization, Linear Algebra and Ordinary Differential Equations, Partial Differential Equations, Single and Multivariable Calculus, Numerical Methods

Data Analysis: Statistical Simulation and Data Analysis, Probability and Statistics, Data Mining, Geospatial Data Processing, Machine Processing of Remotely Sensed Data, System Analysis, Neural Networks, Machine Learning for Trading (Udacity), Reinforcement Learning (Udacity)

Others: Microeconomics, Introduction to Electronics, Fundamentals of Computing

TECHNICAL SKILLS

Programming Languages - C, C++, C#, Python

Other Tools - MATLAB, Mathematica, R, LaTeX

POSITION OF RESPONSIBILITY

Teaching Assistant for the course: Global Navigation Satellite Systems (CE674A)

Co-ordinator - *Society of Civil Engineers, IIT Kanpur (2014-15)*

- Involved in the overall management of Society of Civil Engineers, consisting of 37 faculty members and more than 600 undergraduate and postgraduate students
- Organized and managed industrial visits for students, guest lectures, departmental cultural events and events to improve faculty-student interaction