Manik Bali
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Subject: Application for the position of AI Techlead

Dear Amit,

Thank you for your email. I am a Machine Learning (Masters in Machine Learning from University of Maryland, USA) expert with extensive experience in Computer Vision and have used Tensorflow, Support Vector Machine, Spectral Classification , KNN etc. I wish to apply for the position of AI Lead in your company. Some of my recent projects in Facial recognition can be viewed on my github account at https://github.com/manikbali/MachineLearning

Why I believe I am the right person for the job

I have well documented experience in each of the areas sought for the job

1. Lead projects in Computer Vision, Data Analytics using Object Oriented languages such as Python. My codes are on the github. Some of the projects that I have completed are, facial recognition, C++ interfaces (Python,C++, Fortran/C++ and C++ readers), Identifying Shapes (Lines, Circles etc) and Creating Panoramic images. My codes are critical part of image processing systems and work has been published in international journals and books. (see here).
   In addition I have completed courses on use of Object Oriented concepts in Machine learning in University of Maryland and have a good working hand at it.

2. Natural Language Processing
   I recently lead a project on NLP. We developed a tool on Google Cloud that reads in text data in Google docs and extracts meaningful information from it and posts it on the web. The tool was presented in international AI Conference and can be viewed here

3. I have used Mathematics and Probability extensively in Data Analytics and Machine Learning. One of the recent example can be viewed here . In addition I have used Statistical techniques such as Maximum Likelihood estimation, Central Limit Theorem, Hidden Markov chain, Estimation Maximization etc. to build classification and predictive models. These have resulted in journal publications. Some of these can be viewed here .

M past roles I have worked on analyzing images, developed predictive models and code optimization. My work on modelling has resulted in publications and is being used as a benchmark for research on modelling. I have developed tools in Python, R, Tablue and Matlab to analyze Business Intelligence data sets.

With this experience, I believe I can bring to the table a unique combination of Computer Vision, Mathematics, Programming and Machine Learning to the table and I wish to apply for the position of AI Lead.

Please find my resume with the cover letter.

Regards
Manik Bali

Manik Bali

Machine Learning Expert

EXPERIENCE

Planning Large Data solutions
Data Analytics
High Performance Computing,
Computer Vision

PROFESSIONAL

Certifications in Hadoop, AWS, Tablue
FORTRAN, SAS, C, C++, JAVA, Mahout
Python, S, Mathematical Modelling

Professional training
In HPC from IBM

PERSONAL DETAILS
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PERSONAL SUMMARY

A highly motivated and ambitious Machine Learning expert with more than 20 years of experience in top institutions of the world. Has the ability to give timely and accurate advice guidance and support to planning Machine Learning activities. Now looking forward to making a significant contribution as Machine Learning expert.

WORK EXPERIENCE

University of Maryland, College Park, MD

Senior Faculty Assistant(May 2011 -)

Project:

Lead International Team on Data Analytics and Predictive Modelling

Duties:

- Lead design of machine learning tools to improve satellite data.
- Lead design of large dataset data analytics (Python, Tablue, R) on Linux Clusters.
- Develop image processing tools(target recognition, facial recognition)
- Lead Development of predictive models using dynamical models.
- Brought down overheads costs (~ $ 50,000)
- Setup a Hadoop cluster to identify collocated pixels between satellites.
- Developed data models, decision trees, data lineage and traceability repositories and technologies.
- Develop an Actions Page on Google Sheet interfaced it with web using JAVA API.
- Lead projects on Computer Vision(Hough Transform), Convolutional Neural Network and Baysean aproach
- Designed Image classification tools on Tensorflow, Pytorch, SVM, KNN

Blog: http://science-space-computer.blogspot.com/

Max Planck Institute for Meteorology, Hamburg, Germany.

Independent Researcher (May 2009- April 2011)

Project:

Designed a data Analytics framework for a mathematical model for a NASA study The aim of this study was to measure the impact of initialization on skills of predictive model using Tensor Flow. This is a follow up of NASA GLACE study.

Duties:

- Setup an ensemble (total 124) of nonlinear predictive Hindcasts driven on a NEC multiprocessor processing system.
- Performed data integrity checks, data cleaning, exploratory analysis and feature engineer using R and Python.
- Identified, analyzed and interpreted trends or patterns in complex data sets using data mining tools.
- Developed equations to measure predictive skills.
- Input data into Machine learning tool Tensor Flow, improved prediction by ~10%
- **Initiated partnership with NASA and work published in international journal.**

European Space Agency, Darmstadt, Germany

Payload Data Ground Segment Engg. (Oct 2008- April 2009)

Project

Lead the design of Data processing chain for future European Satellites. Sentinel-2/3/4/5 would be a GMES satellite that would be launched in 2013.

Duties:

- **Manage an international team of European scientists focused on design the Level 2A data processing chain**.
- Lead the Analytics and Predictive modelling suits on the data real time data
- Design Meta data standards data lineage and traceability repositories and technologies
- Negotiated with suppliers of hardware and Visualization software.
- Presented designs in international conferences.
- Work was presented in international conference in Earth Observation in Canada.

European Organization for the Exploitation of Meteorological Satellites (EUMETSAT), Darmstadt, Germany

Meteorological product validation S/W Engineer (Sept 07 – July 2008)
Project: Analytics and Visualization of Satellite data and produce physical products.
Duties

- Lead the Automation, optimization and benchmarking of Satellite images taken by MSG satellites.
- Designed the Product Quality optimization using empirical nonlinear fit machine learning method
- Planned and managed algorithms and processing chain for generating wind vectors from Polar satellites.
- Recorded production data, including labor, actual production time, adjustments, lot/batch number, quantity produced.
- Lead interaction with client to record its requirements.
- ***Work presented in international winds conference in Washington DC***

Max Planck Institute for Meteorology (MPI-M), Hamburg, Germany

Scientist (Nov 2003 – Aug-2007)
Project: Improve predictive models for NASA weather prediction
Duties:

- Inter-compare predictive models to measure variability in skill
- Developed equations to measure similarity between predictive model runs which identifies high and low skill areas.
- Design sensitivity experiments to identify predictors of models.

Centre for Development for Advanced Computing New Delhi, India

Manager Scientific and Engineering Applications Group (July 1999 – Oct 2003)
Project: Lead National Projects on Analytics and Visualization on Crash Analysis, Weather Prediction, Bioinformatics
Duties:

- Lead implementation of weather prediction suite at varying spatial resolution.
- Optimize 4 D Vibrational Machine Learning code and improve its predictive skill
- Optimize performance of Weather Predictive models on Scalar Machine and match performance of CRAY-XMP
- Lead Data Analytics and Visualization using Finite Element decomposition.
- Lead Analytics and Genome Sequencing project
- ***Invited to UK in World Tera Computing Conference to present my work on Machine Learning.***

Indian Institute of Science, Bangalore, India

Project Assistant (Jan 1998 – Jun 1999)
Project: Parallelization and optimization on IBM Scalable Processor
Duties:

- Performance testing of IBM SP2 distributed memory system for Climate models and weather prediction models.
- Parallelized a cloud detection algorithm on the IBM SP2 using MPI (IBM's version of MPI). The cloud detection algorithm was developed to detect cloudy pixels from INSAT's (satellite) visual images. The algorithm was parallelized using domain decomposition approach and high scalability was achieved.

EDUCATIONAL BACKGROUND

Master in Machine Learning		Due -2021
Big Data Hadoop Certificate		2013
Masters in Technology	(M.Tech)	1998
Masters in Science in Mathematics	(M.Sc)	1995
Bachelors in Science Mathematics	(B.Sc)	1993

Publications and Conference presentations on Data Analytics

http://science-space-computer.blogspot.com/2012/04/publications-and-conference.html