Animesh Anant Sharma

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EDUCATION

Columbia University — New York, NY
M.S. in Computer Science (Machine Learning Track) — Expected Dec 2018

Indian Institute of Technology Roorkee — Roorkee, India
B.Tech. in Electrical Engineering, GPA 8.54/10.0 — Jul 2013 – May 2017
- Relevant Courses: Artificial Neural Networks, Machine Learning

AREAS OF INTEREST

Machine Learning, Computer Vision

PUBLICATIONS

Univariate short term forecasting of solar irradiance using modified online backpropagation through time — **Published Paper**
Animesh Anant Sharma
IEEE ICSEC 2016 (Published)

PROFESSIONAL EXPERIENCE

Samsung Research Institute Bangalore — Bangalore, India
Research Intern — May 2016 – Jul 2016
- The goal was to predict call drops efficiently and effectively; approach of the adaptive filter was incorporated in online BPTT and coding was done on MATLAB.
- This technique,which is used in signal processing, changes the transfer function with error feedback as and when the complete information is available; NMSE error was -42.23 dB for the final architecture.

Indian Institute of Technology Kanpur — Kanpur, India
Research Intern — Jun 2015 – Jul 2015
- Started with the basics of machine learning and then the internship involved learning and application of different algorithms like linear regression, logistic regression, neural networks and support vector machines.
- These were tested on datasets involving recognition of postal codes, movie ratings and image compression.

PROJECT EXPERIENCE

Electrical Engineering Department, IIT Roorkee — Roorkee, India

Developement and Testing of a face recognition system — Jul 2016 – Apr 2017
- The attendance system of a classroom was automated using the developed system; the simple technique of eigenfaces was implemented for purpose of learning.
- Face landmark detection was done using dlib and OpenCV was used for preprocessing; CNN was used to get feature vector so that SVM can be used to classify the extracted information; the technique was similar to the one used in OpenFace project and later an application was developed for real time testing in classrooms. **Code**

Univariate very short term and short term forecasting of solar irradiance using modified online backpropagation through time — Jul 2016 – Sep 2016
- The goal was to predict the solar irradiance values for multiple look ahead predictions with time intervals as small as 15 minutes; online form of back propagation through time was implemented on MATLAB.
- The performance of the proposed network was tested comprehensively using two years of data and it outperformed the persistence model and the normal recurrent network; Research paper presented at the 20th IEEE International Computer Science and Engineering Conference (ICSEC), 2016. **Code**

Time-series prediction of rainfall in rural India with SVM and comparison with MLP — Mar 2016 – Apr 2016
- The time series prediction of rainfall was done using SVM and MLP; conventional models based on various climatic features were also constructed using SVM and MLP.
- Among these four models the conventional model constructed using SVM appears to be the best solution with a mean absolute error of 13.66; the project was implemented using MATLAB. **Code**

Ball Balancing Platform Using PID control — Feb 2016 – Apr 2016
- The objective was to balance a ball on a plane surface (plate) and to track the ball through vision cameras to give feedback of position; Real Time tracking of ball was achieved by Template Matching and selecting the ROI.
- The motion involving 2 degrees of freedom of plate was achieved by controlling 2 Servo motors using PID controller and Arduino UNO as microcontroller.

ADDITIONAL EXPERIENCE

Teaching Assistant: Artificial Neural Networks, IIT Roorkee, Spring 2017.

LANGUAGES	English: Full Professional Proficiency (speaking, reading, writing). Hindi: Native language.

SKILLS

Programming Languages: Python, C++, C, MATLAB, SQL,HTML, CSS, VHDL.

Tools and Technologies: GNU/Linux (Ubuntu), Torch, Tensorflow, OpenCV, dlib, Git, MySQL, LATEX, Eagle, NI LabView.

ACADEMIC HONORS

- Secured All India Rank of 1465 in Indian Institutes of Technology- Joint Entrance Examination Advance-2013.
- Secured 99.4 percentile in Indian Institutes of Technology- Joint Entrance Examination Mains-2013.

RELEVANT COURSEWORK

AI/ML: Artificial Neural Networks, Machine Learning.

Mathematics: Discrete Structures, Mathematical Methods(Laplace and Fourier Transform, Differential Equations), Mathematics-I(Matrix Algebra, Differential and Vector Calculus)

Theory and Systems: Operating Systems, Theory of Computation, Database Management Systems, Microprocessors and Peripheral Devices, Design and Analysis of Algorithms, Data Structures, Programming in C++.

Robotics and Control: Robotics and Control, Control Systems, Advanced Control Systems, Advanced System Engineering.

CAMPUS ACTIVITIES

Himalayan Explorers Club, IIT Roorkee   Jul 2016 – Apr 2017
- Part of the rangering camps and skate boarding sessions conducted for the students.
- Active participant in the treks organised by the club.

Fuzzylogix- The Big Reveal   Mar 2016
- Achieved the first position in a Data Analytics Competition organised by Fuzzy Logix.
- Provided a solution for Optimisation of maintenance/renewal activities of Railway Tracks by investigating and determining the relationships between track degradation and track structure, maintenance, as well as operational factors, for relevant operating conditions.

Management and Organization, Thomso-2015, IIT Roorkee
Event Coordinator   Oct 2015
- Worked as Event Coordinator for the management and organising of the events in Thomso 2015-the cultural festival of IIT Roorkee.
- Responsible for conducting centre stage events of the festival.

Cyborg Break-In, Cognizance IIT Roorkee
Co-coordinator   Mar 2015
- Was the Leader of the organising team of one of the largest centre stage robotics event Cyborg Break-In in Cognizance- the technical festival of IIT Roorkee.
- More than 200 college students from all over the country participated in the event to exercise their robotic niche.The event was a great success.

Sports (Basketball)   Aug 2013– Apr 2014 & 2010
- Secured second position in basketball at the district rural competition conducted by state sports department and sports authority of India in 2010.
- Was member of the National sports organisation(NSO)-basketball in first year of college.

REFERENCES

Dr. M. Felix Orlando	**Prof. G.N. Pillai**
Assistant Professor	**Professor**
Department of Electrical Engineering	Department of Electrical Engineering
Indian Institute of Technology, Roorkee	Indian Institute of Technology, Roorkee
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