

Akshat Agrawal

ENGINEERING DEVELOPMENT GROUP AT MATHWORKS

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Work Experience

Engineer at Engineering Development Group

MathWorks, Bangalore

MATHWORKS INDIA

June 2019

- **Created Variable Groups functionality for Variant Configuration Analyzer:** This is an enhancement made to the Variant Configuration Analyzer of the Variants Manager tool in Simulink.
- **Customer Collaboration:** Collaborated with customers and also gave a workshop as a part of the Engineering Development Group to solve their various product (MATLAB, Simulink and other MathWorks Toolboxes) related queries in the field of Machine Learning and Automotive Industry.
- **Technologies Used:** MATLAB, Simulink, JavaScript, C++, MathWorks proprietary data modelling framework.
- **Skills Acquired:** OOP Concepts, Design Patterns like Strategy Design Pattern and Facade Design Pattern.

Freelance Machine Learning Engineer

Remote Job

HIREPRO

February 2019

- **Skill Automatching:** Given the name of a skill, the aim of this project was to identify most similar skills related to the given skill. This job was accomplished by using TF-IDF for text vectorization and K-Means Clustering for finding similar skill clusters. Then distance based selection was done to find the closest skillset.
- **Technologies Used:** Python, Scikit-Learn, Numpy, Pandas.

Research Thesis on Stock Market Analysis

IIT Allahabad

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, ALLAHABAD

May. 2018 - May. 2019

- **Stock Screener:** The stock screener is made to find potentially rewarding stocks automatically using principles of Technical Analysis.
- **Stock Price Predictor:** The aim of this is to predict stock prices by analyzing past data using machine learning.
- **Technologies Used:** Python, Scikit-Learn, Numpy, Pandas, Scipy.

Summer Research Internship

IIT Kanpur

CENTRE FOR CYBER SECURITY, INDIAN INSTITUTE OF TECHNOLOGY KANPUR

May. 2017 - July. 2017

- **Threat Intelligence Dashboard:** The aim of this digital dashboard was to analyze and track real time Cyber Threats prevailing in different parts of the world. I developed it using Elasticsearch, Logstash, Kibana and Python.
- **Malicious URL Detection System:** I used Machine Learning to classify URLs as Malicious or Safe using TF-IDF algorithm for text vectorization and an ensemble of Decision Trees, Logistic Regression and K-Nearest Neighbours algorithms for classification.
- **Open source threat intelligence feed:** I used Python-Django to make a back-end API of a threat intelligence feed which aggregates the intel from multiple online sources, filters the data and provides it in JSON format to the users in multiple different categories.
- **Technologies Used:** Elasticsearch, Logstash, Kibana, Python, Scikit-Learn, Numpy, Pandas, Scipy, Django

Summer Internship

Bangalore

HIREPRO

May. 2016 - June. 2016

- **Resume Parsing System:** Given a set of resumes of thousands of candidates, my job was to extract relevant information like skills, work experience and education details from it using Regular Expressions.
- **Technologies Used:** Python

Education

Indian Institute of Information Technology

5 YEAR DUAL DEGREE (B.TECH + M.TECH) IN INFORMATION TECHNOLOGY

- CGPA - 8.2

Allahabad

Aug. 2014 - July 2019

Little Angels High School (CBSE)

HIGHER SECONDARY EDUCATION

- Scored 95% marks in Higher Secondary Examination.

Gwalior

2013 - 2014

Little Angels High School (CBSE)

SECONDARY EDUCATION

- Scored 8.8 CGPA in Secondary Examination.

Gwalior

2011 - 2012

Projects

Controlling the AC temperature by determining Number of people in the Room

HACKDAY HACKATHON AT MATHWORKS

- This was a 24-Hour Hackathon. We counted the number of people in the room by using crowd detection algorithm and then fed the count and current room temperature into a mathematical equation designed by us to output the desired temperature of the AC. The desired temperature would then be sent to the thermostat for changing the actual value.

- Technologies Used : MATLAB

Bangalore

November 2019

Face Recognition and Verification System

IIIT ALLAHABAD

- The main aim was to build a face recognition system that tags the face of the person recognized in the trained database, or gives an "unknown" tag to the person it does not recognize.
- The major aspects of it were dataset creation, data preprocessing, and object recognition and verification.
- I used OpenCV for data preprocessing, Principal Component Analysis (PCA) for dimensionality reduction and Artificial Neural Network (ANN) for image classification.
- Technologies Used : Python, OpenCV, NumPy, Scikit-learn, Pandas

Allahabad

Feb. 2017

Image Captioning using Deep Learning

IIIT ALLAHABAD

- The project aims at generating dense descriptions of images.
- A Regional Convolutional Neural Network was used to detect objects in the image and Recurrent Neural Network was used to generate description of images.
- Technologies Used : Python, Keras, Tensorflow, Scikit-Learn.

Allahabad

Oct 2016

Technical Skills

Areas of Interest
Programming Languages

Algorithms, Data Structures, Machine Learning.
C, C++, Python, SQL, MATLAB

Achievements

Oct 2019 **TEDx Talk on Artificial Intelligence**, TEDxYouth@LAHSGwalior

Gwalior

July 2017 **My Project was featured on the home page of the website of Cyber Security Center**, IIT Kanpur

Kanpur

Feb 2016 **Vice-Chairperson**, at Lex Model United Nation Conferences, University of Allahabad

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2012 - 16 **Best Delegate Awards**, at 5 Model United Nation Conferences and High Comm. at 3 Conferences.

Across the Country

Oct 2015 **Best Theme**, Ala Mode, Fashion Show, IIIT Allahabad.

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Aug 2014 **Runner Up**, Kavi Sammelan, Foundation Day, IIIT Allahabad.

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May 2014 **99.2 Percentile**, in Joint Entrance Examination (Mains) - 2014.

Gwalior