# Akshat **Agrawal**

ENGINEERING DEVELOPMENT GROUP AT MATHWORKS

(+91) 7985387019 | (+91) 9838206921 | ✉ akagrawa@mathworks.com | akshat16.agr@gmail.com | akshat7 | akshat-aggarwal

## Work Experience

### 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
*IIIT 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 Maliscious 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
*Allahabad*

5 YEAR DUAL DEGREE (B.TECH + M.TECH) IN INFORMATION TECHNOLOGY
*Aug. 2014 - July 2019*

- CGPA - 8.09

### Little Angels High School (CBSE)
*Gwalior*

HIGHER SECONDARY EDUCATION
*2013 - 2014*

- Scored 95% marks in Higher Secondary Examination.

### Little Angels High School (CBSE)
*Gwalior*

SECONDARY EDUCATION
*2011 - 2012*

- Scored 8.8 CGPA in Secondary Examination.

# Projects

**Face Recognition and Verification System** *Allahabad*

IIIT Allahabad *Feb. 2017*

- This sub-project done by me is a part of the group project "Home Automation and Security" that I did during my 6th Semester.

- 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

**Colorization of Gray-scale Images** *Allahabad*

IIIT Allahabad *Nov. 2016*

- The project aims at colorizing greyscale images using a deep convolutional neural network.
- We trained our images in the YUV format because it gave us better accuracy on our CNN model.

- The Y part consist of a gray-scale image which had all the information, lines and shape of the image whereas the UV part had the coloured part of the image. We trained our CNN on Y part of image and it learns the corresponding UV part.

- Technologies Used : Python, Keras, Tensorflow.

**Image Captioning using Deep Learning** *Allahabad*

IIIT Allahabad *Oct 2016*

- 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.

# Technical Skills

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| **Areas of Interest** | Algorithms, Data Structures, Machine Learning. |
| **Programming Languages** | C, C++, Python, SQL |

# Achievements

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| 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 | *Allahabad* |
| 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. | *Allahabad* |
| Aug 2014 | **Runner Up**, Kavi Sammelan, Foundation Day, IIIT Allahabad. | *Allahabad* |
| May 2014 | **99.2 Percentile**, in Joint Entrance Examination (Mains) - 2014. | *Gwalior* |

# Extracurricular Activity

**IEEE RAS UP Chapter** *IIIT Allahabad*

Secretary and Founding Member *2017*

- Organised a tech quiz and a programming contest.
- Organised a talk on Machine Learning in CyberSecurity by inviting Prof. Sandeep Shukla of IIT Kanpur.
- Organised a talk on Data Science for Security & Privacy by inviting Prof. Ponnurangam Kumaraguru of IIIT Delhi.

Hobbies: Programming, Meditation, Swimming, Snooker, Public Speaking, Movies.