



Mohsan Ali

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Faculty of Computing and Artificial Intelligence, Department of Computer Science, Air University, 44000, Islamabad, Pakistan

● WORK EXPERIENCE

24/08/2020 – CURRENT – Islamabad, Pakistan

RESEARCH ASSOCIATE – NATIONAL CENTER FOR CYBER SECURITY AND NATIONAL FORENSIC CYBER AND CRIME LAB

On the internet, hate speech identification is critical for policing material in any country. The National Cyber Security Center(NCCS) is creating an automated hate detection tool for social media applications on the internet. I am part of the NCCS team, working on methods for detecting hate speech on the internet using natural language processing, machine learning, and deep learning. I have over three years of expertise detecting and classifying hate speech distributed via social media blogs and emails, and I have also published journal and conference publications in this field.

05/09/2018 – 24/07/2020 – Islamabad, Pakistan

RESEARCH SCHOLAR – AIR UNIVERSITY

I won the research scholarship award which included the MS Computer science degree and few compulsory requirements such as Lab conduction of data science subject, programming labs, software engineering, Compiler Construction, Theory of Computation, Web Development, and Databases Labs were included. Moreover, Research activities to enhance the impact of Master dissertation was also part of my job description. I completed this tenure with honor award from the Air University, Islamabad.

09/09/2017 – 04/10/2018 – Rawalpindi, Pakistan

SOFTWARE DEVELOPERS – PAKISTAN TECHNICAL EDUCATION BOARD

I developed online store web application using web technologies such as C# dot net framework, databases, online payment methods, and reporting management modules. NodeJS, AngularJS, MongoDB, and Casandra Databases were also used during my this internship. I also developed any online Email designer for the creation of interactive emails to promote the business activities.

08/08/2017 – 08/09/2017 – Rawalpindi, Pakistan

DATABASE ADMINISTRATORS TRAINING – UNIVERSITY INSTITUTE OF INFORMATION TECHNOLOGY

● EDUCATION AND TRAINING

05/11/2018 – 24/07/2020 – Department of Computer Science, Air University, Islamabad, Pakistan

MASTER OF SCIENCE IN COMPUTER SCIENCE(MSCS) 18-YEARS EDUCATION, CGPA: 3.85/4 – Air University

<https://www.au.edu.pk/>

14/09/2014 – 02/08/2018 – Islamabad, Rawalpindi, Pakistan

BACHELOR OF SCIENCE IN COMPUTER SCIENCE(BSCS) 16-YEARS EDUCATION, CGPA: 3.79/4 – Arid Agriculture University

<https://www.uaar.edu.pk/index.php>

10/10/2020 – 10/01/2021 – Andrew Ng Coursera, California, United States

NEURAL NETWORKS AND DEEP LEARNING – deeplearning.ai

<https://www.coursera.org/learn/neural-networks-deep-learning>

10/01/2021 – 05/02/2021 – California , United States

IMPROVING DEEP NEURAL NETWORKS: HYPERPARAMETER TUNING, REGULARIZATION, AND OPTIMIZATION – DeepLearning.ai Coursera

<https://www.coursera.org/learn/deep-neural-network>

04/03/2018 – 09/04/2019 – California, United States

IMAGE AND VIDEO PROCESSING: FROM MARS TO HOLLYWOOD WITH A STOP AT THE HOSPITAL – DeepLearning.AI Coursera

<https://www.coursera.org/learn/image-processing>

10/10/2019 – 15/02/2020 – Faculty of Computing and Artificial Intelligence, Department of Computer Science, Air University, Islamabad, Pakistan

DATA SCIENCE AND MACHINE LEARNING WITH PYTHON HANDS-ON – Udemy

<https://www.udemy.com/course/python-for-data-science-and-data-analysis-masterclass-2020/>

06/05/2019 – 10/09/2019 – Islamabad, Pakistan

PYTHON FOR EVERYBODY SPECIALIZATION – Coursera

<https://www.coursera.org/specializations/python>

02/02/2020 – 03/04/2020 – Islamabad, Pakistan

HANDS ON NATURAL LANGUAGE PROCESSING (NLP) USING PYTHON – Udemy

<https://www.udemy.com/course/nlp-natural-language-processing-with-python/>

<https://www.udemy.com/course/the-python-mega-course/>

THE PYTHON MEGA COURSE – Udemy

<https://www.udemy.com/course/the-python-mega-course/>

● LANGUAGE SKILLS

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C2	C2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● **DIGITAL SKILLS**

Computer Science

Computational Intelligence | Image and video processing | Algorithm Development and Analysis | Data Structures | Research Methodologies | Image processing | Computer architecture | Organizational and planning skills | Programming (C,C++, Java, Assembly) | c++ Object-oriented Programming | Network Security and Machine Learning Applications | Written and Verbal skills | Proficient in Python, Java, Javascript, C, C++ and some knowledge of Matlab | Web Development using Flask & Django | SQL and NoSQL Databases development

Data Science and Artificial Intelligence

Machine Learning using R and Python | hate detection from videos and images uploaded on social media | hate speech detection using NLP and Artificial Intelligence | Machine Learning algorithms | Deep Learning algorithms development and Improvements | Data Science Using R and Python | Python for Deep Learning

Natural Language Processing

Python for NLP | Natural Language Processing using python | Text summerization | Natural language processing for low resources languages | Classification (feature extraction, feature selection, clustering, neural networks) | Text Analytics | Sentiment Analysis | Hate speech detection | topic modeling

Python and Graph Theory

python development | Graph theory applications | Community detection on social media using interactions | netw orkx | Python Data Analysis (Numpy pandas networkx keras tensorflow etc) | Python libraries (NumPy, Pandas, Keras, SciKit-Learn, TensorFlow, Matplotlib, Seaborn)

● **PROJECTS**

Hate detection from the speech based on deep learning models

Hate speech spread through the social media platforms have a wider impact over the countries economy and law enforcement agencies. I developed a tool to analyze the content of social media platforms to control the content over the social media using Deep neural networks such as LSTM and GRU.

Email Forensic for capturing the harmful emails using hierarchal representations learning

each email sent through the email servers have a body area, body can have fraudulent, aggressive, or vulnerable content. My developed model is able to detect the harmful emails.

Multiclass hatred detection using deep learning and community identification using the graph theory

how hatred content is spread with users information makes a community, we plotted this community in the graphical format to analyze them.

Community detection in twitter using the forward and backward connection graph

Community over the social media always plays a role to spread the post instantly, our tool will evaluate the parameters of the posted news to check the involvement of each user to particular post. for example, how the different people are supporting a post.

Tor and non-tor real-time classification using machine learning techniques

Anonyms searching is the current evolving technology, it have several advantages and dis-advantages. My developed application will differ the traffic generated from a Tor or Non tor browser based on the features.

Rumor analysis about covid-19 using twitter and deep learning: case study corona virus

Rumors are also a part of current social media platforms which can damage the economy of any country. Peoples are more at danger because of rumor stances. So, I developed a tool which decides on the basis of deep learning and machine learning algorithms that either a tweet is rumor or non rumor about COVID-19.

MRI Image segmentation using U-net and fuzzy c-mean for cancer detection

MRI images provides important information while diagnosing a patient affected by cancer disease. I developed a tool which will take a MRI image as input and returns on the basis of Features learned and Fuzzy segmentation that which part of the brain is effected by cancer.

Fast video analysis using yolo 9000 and NLP techniques for hatred detection

I extracted the video frames using the multi-tasking of the operating system and then each frame is analyzed with deep learning image processing model for the object detection from images. I also extracted the texts from the speech of video in fast track using multi-tasking.

Fake images detection based on hand crafted feature extraction

an original image is totally different from the edited images based on some hidden features. Our developed model consider all the features that an edited image have to distinguish between the original one.

Replayed voice detection using deep learning and handcrafted feature extraction

an audio file which is original will be different from the audio is replayed/fake. I got the features from the audio spectrogram and analyzed using the deep learning models.

● **HONOURS AND AWARDS**

24/07/2020

MSCS-Gold Medalist – Air University

Vice Chancellor Talented Scholarship Award – University Institute of Information Technology

● **ORGANISATIONAL SKILLS**

Certificate of Appreciation

this certificate is presented by the National center for cyber security as a appreciation and in recognition of my contribution as conference organizer in IEEE 1st annual international conference on cyber warfare and security 2020.

Certificate of Appreciation

In recognition of my active and invaluable participation as a author in 2020 IEEE 23rd International Multi-topic Conference(INMIC) 2020.

● **LINK TO MASTER'S THESIS**

Deep Learning Based Multi-Class Hatred Detection And Community Identification Using Social Networks

<https://drive.google.com/drive/folders/1MVYjll9qGSIBBF8h9xPnJ3HidkN4WxMR>

● **REFERENCES**

Dr. Mehdi Hassan

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[https://www.au.edu.pk/Pages/Faculties/Basic Applied Sciences/Departments/CS/FacultyDetail.aspx?fid=153](https://www.au.edu.pk/Pages/Faculties/Basic_Applied_Sciences/Departments/CS/FacultyDetail.aspx?fid=153)

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https://www.au.edu.pk/Pages/Faculties/Basic_Applied_Sciences/Departments/CS/FacultyDetail.aspx?fid=151