

Raza Imam

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EDUCATION

Aligarh Muslim University, Aligarh, INDIA

Bachelor of Science in Computer Science, May 2022

Thesis: Attribute Based Encryption in Cloud Based Health Services

CGPA: **9.0/10.0** (Till Semester 6)

RESEARCH INTERESTS

Machine Learning, Computer Vision, Information and Network Security, Blockchain, Algorithms

EXPERIENCES / INTERNSHIPS

National University of Malaysia (UKM), MALAYSIA

Research Intern, Sep 2021 - present

- ♦ Conducting a Systematic Literature Review on cyberbully detection on social media using Convolutional Neural Networks.
- ♦ Developing a framework to detect cyberbully using Blockchain and Machine Learning method.

Aligarh Muslim University, INDIA

Research Assistant, Mar 2021 – present

- ♦ Ideated and developed an enhanced version of RSA public key encryption algorithm that is based on xor-operations in the key generation, encryption and decryption phases of the RSA algorithm.
- ♦ Analyzed and researched various fast and secure variants of RSA frameworks and implemented them on SageMath library of Python to study and compare the security, time complexities and randomness analysis.
- ♦ Developed another fast variant of RSA algorithm by parallelizing the RSA algorithm and implementing the enhanced algorithm in C language using OpenMp and GMP libraries in parallel mode.
- ♦ Developed a framework using Attribute Based Encryption and Blockchain to enhance security and access control in cloud-based EHR sharing.

Indian Institute of Information Technology Allahabad, INDIA

Research Intern, May 2021 – Aug 2021

- ♦ Analyzed various DNS-PKI solutions based on the Distributed and P2P frameworks consisting with and without Central Authority particularly using Blockchain.
- ♦ Conduct Research and compiled data for the various Consensus Algorithms, smart contracts, DApps based on Ethereum blockchain.
- ♦ Inspected several use cases of Blockchain technology for efficient data storage, data privacy, authentication and access control in IOT devices.

Computer Science Society, AMU, INDIA

Research Intern, June 2021 – Aug 2021

- ♦ Examined toxic levels of Ramganga River before-and-after Covid19 focusing on the concentration of 6 heavy metals using 6 Machine Learning algorithms, particularly XGBoost, Random Forest, LightGBM, SVM, and Ridge Classifiers, in the decreasing order of resulting accuracies.
- ♦ Conducted research on the classification of potato disease and quality prediction utilizing a Deep Learning approach, i.e., Transfer Learning using FastAI framework.
- ♦ Derived 1500 images dataset following processing and image augmentation on the collection of 600 potatoes belonging to 3 classes, i.e., Healthy, Diseased, and Rotten Classes.
- ♦ Designed a novel CNN model to evaluate aesthetic image quality trained on hand-drawn images and digital art posters without any human intervention. Initial dataset was taken from a Poster competition that our CSS team organized in our Computer Department of CS, AMU.

Chegg Inc., U.S. (Remote)

Subject Matter Expert, Sep 2020 – Mar 2021

- ♦ Responsibility included that the content or information pertaining to the Computer Science expertise is accurate, and to provide specific optimal solution to a particular project or a problem related to the specific mentioned domain.
- ♦ Successfully helped over 200 students across the Globe from Prestigious Universities with their problems and projects pertaining to Undergraduate and Graduate level of problems related to the domain of Computer Science.

PUBLICATIONS

- ♦ Qazi Mohammad Areeb, **Raza Imam**, Noor Fatima, "AI Art Critic: Artistic Classification of Poster Images using Neural Networks", *International Conference on Data Analytics for Business and Industry, Bahrain*, 2021.
- ♦ Noor Fatima, **Raza Imam**, Mohd Belal, Preeti Verma, Ghufraan Ullah, "Disease and Quality prediction of potatoes using Transfer Learning", *ADCAIJ: Advances in Distributed Computing and Artificial Intelligence Journal*, 2021.
- ♦ Noor Fatima, **Raza Imam**, Mohd Belal, Adnan Mohammad Siddiqui, Robeena Sarah, "Machine Learning based Prediction and Analysis of Metal Toxicity in Ramganga River (India) between Pre and Post-Lockdown period", *National Conference on Advancements in Electronics, Computers and Technology, AECIT, IIIT Bhopal*, 2021.
- ♦ **Raza Imam**, Soumyadev Maity, Neetesh Saxena, "An Analysis on the Applications of major Blockchain Implementations in Public Domain", *Communicated, IEEE Access*, 2021.

- ♦ **Raza Imam**, Qazi Mohammad Areeb, Faisal Anwer, “Systematic and Critical Review of RSA Based Public Key Cryptographic Schemes: Past and Present Status”, *IEEE Access*, 2021.
- ♦ **Raza Imam**, Faisal Anwer, “An Effective and Enhanced form of RSA based Public Key Encryption Scheme (XRSA)”, *Wiley Security and Privacy*, 2021.
- ♦ **Raza Imam**, Faisal Anwer, “An Empirical Study of Secure and Complex Variants of RSA Scheme”, *International Conference on Cyber Security, Privacy and Networking, ICSPN*, 2021.
- ♦ Mohammad Anas, **Raza Imam**, Faisal Anwer, “Elliptic Curve Cryptography in Cloud Security: A Survey”, *12th International Conference on Cloud Computing, Data Science and Engineering*, Confluence, 2021.
- ♦ **Raza Imam**, Qazi Mohammad Areeb, “Game Effect based on Particle System in Unity 3D”, *Academia Letters*, 2021.

PROJECTS

NLP-image-to-text

- ♦ Utilized Optical Character Recognition (OCR) to extract the text from images and achieved character level accuracy of 95%.
- ♦ Used a PyTorch pre-trained BERT model and an Enchant’s spell checker function to correct words incorrectly read by OCR.
- ♦ Combined BERT’s suggestions with SpellChecker’s word-based suggestions to yield better predictions than relying solely on BERT.

Ethereum Blockchain implementation for Bank Transaction

- ♦ Implemented the Smart contracts to build the basic web bank transaction DApp (Decentralization Application), Remix platform is used for Smart contracts implementation using Solidity, and HTML/JavaScript is used for Frontend implementation.
- ♦ For the Ether / Gas requirements, used Web3, Metamask and Rinkeby Test network.

Data Analysis of the latest Covid19 scenario in Italy

- ♦ Analyzed dataset to fetch for the relationship between the spread of the virus in Italy and its effect on the overall life on the native citizens.
- ♦ Using libraries Seaborn and Matplotlib, mapped the trajectory for new cases vs total cases to track the evolution of Covid-19 in Italy.

Fake News Detection Using Machine Learning

- ♦ Using sklearn library in Python, built a TfidfVectorizer on our dataset. Then, we initialize a PassiveAggressive Classifier and fit the model. In the end, the accuracy score and the confusion matrix tell us how well our model fares.

Blockchain technology to improve and keep Medical Records Secure

- ♦ Idea based project that was presented at the Ideathon held at AMU presented by UAV-ZHCET, AMU.
- ♦ Presented the ideated methodologies and discussed the advantageous factors of using Blockchain framework in the field of Digital Medical Records considering the need and security in present medical architecture.

SKILLS

- ♦ **Technical:** Tensorflow, Keras, Algorithms, Blockchain, Data Structures, Git/Github, DBMS, Machine Learning.
- ♦ **Programming Languages:** Python, C/C+, JAVA, C#, MATLAB, PL/SQL, JavaScript, Solidity, HTML, CSS.
- ♦ **Soft:** Teaching, Critical Thinking, Management.
- ♦ **Languages:** English, Hindi, Urdu.

ACHIEVEMENTS / POSITIONS

- ♦ Secured **2nd place** and **cash prize** in the **Ideathon**, 2021, AMU, for presenting blockchain solution in medical records.
- ♦ Participated in IMSAR in the **National PowerPoint presentation competition**, 2021.
- ♦ Participated in **Amuhacks 1.0 Hackathon**, AMU, 2020.
- ♦ Participated in **Hackathon AMU 2**, AMU, 2020.
- ♦ Secured 92 Percentile in **JEE Mains** examination among more than a million of applicants.
- ♦ Received **Merit-Cum Means Scholarship, 2018** for attending bachelor’s program by Indian government.
- ♦ Secured **3rd place** among all district schools in the **National Mathematics Olympiad**, TIFR, 2013.
- ♦ **Cybersecurity Lead** at *Google Developer Student Club*, Aligarh Muslim University, 2021.
- ♦ Acting as a **Member** at *Computer Science Society* at Dept. of Computer Science, AMU.
- ♦ Acting as a **Member** at *UAV-ZHCET*, Aligarh Muslim University.
- ♦ Appointed as **Sports Captain** in final year of Intermediate school, 2018, represented school at the whole State-level Multi-Sports Competition.

MOOCs / WORKSHOPS

- ♦ **Cryptography**, *Stanford University*, USA, 2021.
- ♦ **Introduction to IT and Cyber Security**, *Cybrary*, 2021.
- ♦ **Machine Learning Essentials**, *Amazon Web Services*, 2021.
- ♦ **Oracle Database 12c: SQL Fundamentals**, *Sololearn*, 2020.
- ♦ **Introduction to Programming using Python**, *Sololearn*, 2019.
- ♦ **Deep Learning prerequisites: NumPy in Python**, *Udemy*, 2019.
- ♦ **Cyber Security and Digital Forensics**, *Aligarh Muslim University*, 2021.
- ♦ **Information Security & Blockchain Workshop**, *National Institute of Technology, Hamirpur*, 2021.
- ♦ **Goldman Sachs Virtual Experience in Cyber Security**, *Goldman Sachs*, 2021.
- ♦ **Art of Successful Project Management**, *Aligarh Muslim University*, 2021.
- ♦ **Introduction to 1-day IOT Workshop**, *Aligarh Muslim University*, 2020.
- ♦ **Unity Game Jam**, *Unity Technologies*, 2020.