Mohammad Najeeb

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Education

Saarland University **April 2024 – Present**
Master of Science in Media Informatics *Saarbrücken, Germany*
- Transferred from M.Sc. in Visual Computing with credit retention.

Jamia Milia Islamia **Aug. 2022 – July 2023**
Post Graduate Diploma in Computer Applications *New Delhi, India*

Aligarh Muslim University **Aug. 2019 – July 2022**
Bachelor of Science (Honours) in Mathematics with Minors in Statistics and Physics *Aligarh, India*

Experience

Cluster of Excellence MMCI, Saarland University **Sept. 2024 – Present**
Graduate Research Assistant *Saarbrücken, Saarland, Germany*
- Conducting research in the Computational Interaction Group (CIX) under the supervision of Professor Anna Maria Feit.
- Developing algorithms and pipelines for 2D and 3D data processing, including the detection of key points in visual data and the generation of depth maps for further analysis.
- Utilizing advanced visualization tools to create 3D models and interactive visualizations, enabling detailed analysis of spatial data in human-computer interaction contexts.

Taibah University **Nov. 2021 – May. 2022**
Research Intern *Medina, Saudi Arabia (Remote)*
- Worked on a model which can be deployed on resource-limited handhold/embedded devices for concrete crack detection.
- Fabricated a model using a combination of a complex and simple model for detecting cracks in concrete structures.

Technical Skills

Languages: Python, C/C++, HTML/CSS, JavaScript, SQL, MongoDB
Libraries: Tensorflow, PyTorch, Flask, Keras, NumPy, Pandas, Matplotlib, ScikitLearn, React Js, Node Js, and Express Js
Developer Tools: VS Code, Git
Technologies/Frameworks: Linux, Google Analytics, Figma, Illustrator, InDesign, Photoshop

Projects

E-Healthcare: Automated Disease Detection System | *MongoDB, Express, React, Node, Python*
- Built and deployed a machine learning-based disease detection system using the MERN stack for efficient website development.
- Using Gradio, demonstrated skill in data preparation, model training, and machine learning model integration.

Automated Segmentation of Fluorescent Microscopy Images | *Python, PyTorch, Pillow*
- Benchmarking Deep Learning Models to Identify Neuronal Cells through Automated Segmentation of Fluorescent Microscopy Images
- Used the state of the art model "Efficient-Unet" for detecting neurons in the input image.
- Results are visually presented with the help of Seaborn.

Efficient Model for Concrete Cracks Detection | *Python, Tensorflow, Keras*
- The study focused on finding the best deep-learning models to detect cracks in Architectural Infrastructure.
- Used Knowledge Distillation to improve the metrics of smaller models by transferring the knowledge of larger models to them.
- Results are visually presented with the help of various powerful SciPy libraries such as Matplotlib and Numpy.

Automated Face Recognition Based Attendance System | *Python, OpenCV, FLask*
- Developed a facial recognition based attendance system which automatically marks attendance by identifying and verifying a person's facial features to expedite the daily attendance process.
- Used Haar cascade Algorithm for face detection.
- Deployed a Flask-based web application for web-based interaction.

Climate Change Forecast of Delhi | *Python, Scikit-learn*
- Exploratory Data Analysis of Time Series Data for Climate Change Forecast of Delhi using Seasonal Auto-Regressive Integrated Moving-Average with eXogenous factors (SARIMAX).
- Presented results using Seaborn, Matplotlib, and Statsmodels

Arduino Based Ambient Light | *C++, Arduino*
- Developed an Arduino-based ambient light for a monitor that captures pixels around the monitor and illuminates the LED behind it according to the color of the pixels to create immersive effects and to reduce eye strain as well.
- WS2812b RGB Strip light was programmed with C++ and FastLED library.

Olympia Academia Website | *HTML, JavaScript, CSS, Google Cloud Console*
- Designed and developed a lightweight, minimal website with HTML, JavaScript, and CSS.
- Optimized the website for organic and unpaid traffic (SEO).

Publications

- Zim, A. H., Ashraf, A., Iqbal, A., **Najeeb, M.**, Malik, A., Kuribayashi, M., Khan, A. (2024). Zea Mays Leaf Disease Classification Using Swin Transformer. *International Conference on Signal, Machines, Automation, and Algorithm (SIGMAA 2023)*, pp. 827–838. Springer [DOI link]

Symposium/Workshops/Hackathons Attended

- **International Conference on Emerging Computational Intelligence (ICECI-2023)** organized by the **Aligarh Muslim University, Aligarh, India** [Certificate]
- Delegate at **HPAIR Harvard Conference 2023 (HCONF)** organized by the **The Harvard Project for Asian and International Relations, Harvard University, Cambridge, Massachusetts, United States** [Letter]
- Participated in 7-days workshop on **Cyber Security Essentials** organized by the **Department of Computer Science, Aligarh Muslim University, Aligarh, India** [Certificate]
- Participated in 3-days online workshop on **Art of Successful Project Management** organized by the **Department of Computer Science, Aligarh Muslim University, Aligarh, India** [Certificate]
- Participated in **CodeHeat March Challenge** Organised by **CodeChef ZHCET Chapter, AMU** [Certificate]

Professional Development

Data Processing using Python (DP-03) [Certificate] **Dec. 2022 – Jan. 2023**
SQC and OR Unit, Indian Statistical Institute, Bangalore *(Remote)*
- Finished a preliminary data mining and machine learning course on descriptive statistics, data summarization and aggregation, missing value handling, data scaling/transformations, advanced imputation, feature selection, data visualization, and supervised and unsupervised learning.

Deep Learning Specialization [Certificate] **Feb. 2022**
Deeplearning.ai, Coursera 'Specialisation' *(Online)*
- Five courses of the Deep Learning Specialization covering Convolutional Neural Networks and Sequence Models.

Extracurricular / Volunteer Experience

Vice President and Technical Lead - Olympia Academia [Sep. 2019 – Present]
Co-founded Olympia Academia, AMU's first mathematical sciences society. Contributed to bringing new members by creating a website and social media handles.

Volunteer - Sir Syed Global Scholar Award (SSGSA) [Jul. 2022 - Present]
Helping in propagating various educational outreach events on social media to the last mile.

Co-organized an online scientific Talk by Thomas J. Buckholtz in Olympia Academia, AMU [Oct. 2021]
Co-organized a scientific talk by Thomas J. Buckholtz (Research Associate, Ronin Institute) on "The Tiny and the Vast: Predictions about Elementary Particles, Dark Matter, and the Cosmos."

Member of Google Developer Students Club - AMU Chapter [Aug. 2021 – Aug. 2022]
Developer Student Clubs are university-based community groups for students interested in Google developer technologies.

Volunteered - ActionAid India [Apr. 2020 – July 2020] [Certificate]
Created social media micro-campaigns to raise awareness about COVID-19 and to solicit donations to support relief efforts in India.

Member - AMU-OSS [Sep. 2019 – July 2022]
A group of open source enthusiasts at Aligarh Muslim University.

Tech YouTuber [Dec. 2012 – Present] [Link]
Produces video reviews and technology guides of consumer electronics.