

Hammad Ali

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SUMMARY

A motivated Computer Science graduate with a passion for leadership and innovation. Skilled in problem-solving, collaboration, and leveraging technology to address real-world challenges. Committed to driving positive change and empowering others through impactful initiatives. Experienced in fostering teamwork and delivering practical solutions. Dedicated to continuous growth and contributing meaningfully to society.

EDUCATION

Ghulam Ishaq Khan Institute (GIKI) Masters of Science in Computer Science	Topi, Swabi 2023 - 2025
National University of Modern Languages (NUML) Bachelors of Science in Computer Science	Islamabad 2019 - 2023

RESEARCH WORK

A DEEP LEARNING-BASED MULTI-STAGE FRAMEWORK FOR COMPREHENSIVE ANALYSIS OF TOOTH LOCALIZATION AND ORIENTATION IN ORTHOPANTOMOGRAMS:

- Designed and implemented a comprehensive AI pipeline to automate the analysis of dental panoramic radiographs for enhanced clinical support.
- Developed and trained a suite of specialized deep learning models (YOLOv9, U-Net, ResUNet, ResNet18, EfficientNet-B0) for a range of tasks including object detection, segmentation, and classification.
- Engineered a novel hybrid system that integrates a deep learning classifier with a deterministic geometric algorithm to perform precise tooth angulation analysis.
- Created a custom-annotated, multi-modal dataset from clinical OPGs to support the training and validation of the AI models.
- Managed the end-to-end model development lifecycle, from data pre-processing and augmentation to implementation and evaluation, using Python and PyTorch.

PROJECTS

TEXT/IMAGE CLASSIFICATION:

- Pre-processed text (tokenization, lemmatization) and images (resizing, normalization) to ensure clean input data.
- Extracted features using TF-IDF, Word2Vec for text, and CNNs for image data.
- Applied machine learning models (SVM, Random Forest, Naive Bayes) and deep learning (CNN) for classification tasks.
- Evaluated models with cross-validation and developed a real-time interactive classification system.

GAN WITH TRANSFORMER-BASED ARCHITECTURE:

- Implemented synthetic data generation using GAN and Conditional GAN with Transformer-based architecture.
- Designed and trained models to produce high-quality tabular synthetic data tailored to specific conditions.
- Preprocessed datasets to ensure compatibility with GAN architectures and optimized training processes.
- Conducted evaluations to validate the quality and usability of the generated synthetic data.
- Visualized results to compare synthetic and real data distributions using advanced plotting techniques.

PUBLICATIONS

Mitigating Adversarial and Data Poisoning Attacks in Cybersecurity Applications (IEEE conference 2024)

- Contributed to designing deep learning models for cybersecurity tasks like malware detection and spam filtering.
- Developed training techniques to strengthen model robustness against adversarial and poisoning attacks.
- Conducted experimental evaluations of model resilience in cybersecurity scenarios.
- Collaborated on analyzing vulnerabilities and proposing mitigation strategies.

EXPERIENCE

RESEACRCH ASSISTANT (GIK INSTITUTE OF ENGINEERING SCIENCES AND TECHNOLOGY)

- Conducting literature reviews to identify relevant research trends and methodologies.
- Collecting, cleaning, and preprocessing datasets for analysis.
- Developing and implementing machine learning models and algorithms.
- Collaborating with team members on research.

GRADUATE ASSISTANT (GIK INSTITUTE OF ENGINEERING SCIENCES AND TECHNOLOGY)

- I assisted teachers during class lectures by providing support in various tasks.
- Collaborated with lab engineers to facilitate laboratory sessions, ensuring smooth operation and student assistance.
- Demonstrated proficiency in both classroom and laboratory environments, contributing to an effective learning experience for students.

SKILLS

Technical Skills:

- Python | Artificial Intelligence | Machine Learning | Deep Learning
- Web Development
PHP | C++ | C# | JavaScript | React.js | HTML, CSS
- Data Science
SQL Data Science | Data Collection, Data Processing, Data Analysis, Data Visualisation | Database: MySQL

Tools:

Microsoft Visual Studio Code | Microsoft SQL | Xamp Server | Postman | Microsoft Word | Microsoft Powerpoint | Microsoft Exel | Postman | Github | MongoDB | Jupiter notebook | Google Colab

Soft Skills:

Communication | Leadership and Team Management | Teamwork | Flexibility | Problem-Solving

VOLUNTEERING

• GIK Institute

Event Coordinator of Graduate Student Society(GSS) at GIK Institute.

- Facilitated communication between departments and students, ensuring smooth execution of initiatives.

• GIK Institute

- Organizing member of “**GIKI Emerging Tech & Freelance Innovation Summit 2025**” at GIK Institute.

• GIK Institute

- Organizing member of “**19th International Conference on Emerging Technologies (ICET) 2024**” at GIK Institute.

• GIK Institute

- “**1st Professional Workshop on Data Engineering and Analytics**”, organized by the GIK Graduate Students Society (GSS).

CERTIFICATIONS

- Completed “**The Nuts and Bolts of Machine Learning**” certification from Coursera.
- Completed “**Programming Essentials in Python**” certification from Cisco Networking academy.
- Certificate of participation in workshop on **Data Engineering and Analytics**, promoting practical knowledge in data science.
- Certificate for organizing **19th International Conference on Emerging Technologies (ICET) 2024** at **GIK Institute** and coordinating sessions focused on emerging technologies.