

Ahsan Bilal

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EDUCATION

National University of Sciences and Technology

Islamabad, PK

Bachelor of Electrical Engineering (Specialized: Machine Learning, Machine Learning, Deep Learning, Digital Image Processing)
Expected June 2024

- Cumulative GPA: 3.66 (7 Semesters) Specialized CGPA: 4.00/4.00

WORK EXPERIENCE

Machine Learning Engineer

Islamabad, PK

Cowlar Design Studio – Islamabad

Starting my career at **Cowlar Design Studio**, I'm committed to optimizing our product by focusing on refining existing features and exploring deployment strategies. With a keen eye for innovation and a dedication to continuous improvement, I aim to elevate our product to new levels of excellence.

Feb 2024 – Present

Research Assistant

Islamabad, PK

OPTIMAL MACHINE LEARNING – Lab, SEecs - NUST

During my summer internship, I am engaged in working on my Final Year Project (FYP) titled "**Gait Recognition and Analysis Using Human Poses**" and focusing on Publishing a Journal Paper. Under the guidance and supervision of [Dr. Ahmad Salman](#), my primary objective is to develop a hybrid model capable of learning sequence parameters through both video frames and the poses extracted from these frames. This approach aims to enhance the model's robustness, allowing it to learn from skeleton poses in cases where images are pixelated, and vice versa.

Jan 2023 – Present

UG Research Intern

Islamabad, PK

CSN – ML Lab, SEecs - NUST

As a research assistant, I collaborate with master's students under the supervision of [Dr. Rehan Ahmed](#) and [Dr. Rizwan Ahmed](#) on machine learning and deep learning projects, working on tasks such as data augmentation and data labeling task using **LabelMe** for the optimization of the machine learning model for [UAVs Landslide Imaging](#).

Feb 2023 – August 2023

UG Summer Intern

Islamabad, PK

IC Design Lab, SEecs - NUST

As an IC design summer intern, I gained hands-on experience working with **STM 32** discovery board and developing various applications, including **RFID** systems and **TTL** display using **embedded C** and **Cube IDE**. This opportunity allowed me to strengthen my technical skills, while working collaboratively in a team environment to deliver high-quality results.

June 2022 – Aug 2022

UI Developer

Dubai, UAE

SJCurve - Remote

Experienced UI Developer specializing in responsive web app development with **WordPress** and **React.js**. Skilled in creating visually appealing, user-friendly interfaces by customizing themes and integrating frontend with backend. Collaborative team player with a passion for staying updated on industry trends and delivering exceptional UI. Committed to achieving top-notch results and enhancing user satisfaction.

March 2023 – Present

UI/UX Designer

Wahh Cantt, Pak

Meraki-IT - Remote

Working on the projects' design aspects. As a **UX/UI Designer**, I am responsible for producing user-centered and effective designs. Understanding the issue statement in its entirety and offering a solution through the finished product is the first step in developing a website. These projects are mostly focused on the technology sector.

Nov 2022 – Mar 2023

Publication

- Submitted for review Journal Paper "**Human Gait Recognition using Fused Approach of ResGCN and VGG**"
- Working on improved version "**Stacked Conditional Generative Adversarial Networks for Jointly Learning Shadow Detection and Shadow Removal**" journal paper

Projects

Human Gait Recognition System: Code coming soon

Supervisor: [Dr. Ahmad Salman](#) Co-Advisor 1: [Dr. Adnan Ul Hassan](#) Co-Advisor 2 [Mam. Neelma Naz](#)

- This system aims to analyze and identify individuals based on their unique gait patterns and skeletal poses, contributing to advancements in biometric recognition technology. State of the art result achieved. Working on Research Paper.

Shadow Detection and Removal using Stacked STCGAN: Code coming soon

Supervisor: [Dr. Ahmad Salman](#)

- I am currently engaged in enhancing the ST-CGAN model, focusing on improving shadow detection and removal simultaneously using PyTorch. This research aims to further advance the capabilities of conditional generative adversarial networks for addressing shadow-related challenges in computer vision.

CIFAR 100 ResNet Model [Github](#)

Supervisor: [Dr. Ahmad Salman](#)

- Scratch Training of ResNet Model on CIFAR-100 Dataset with Improved Accuracy through the Introduction of an Attention Mechanism

Landslide Detection Using UNET (With Attention Mechanism): [Github](#)

Supervisor: [Dr. Mohsin Kamal](#) **Co-Advisor:** [Dr. Rizwan Ahmed](#)

- This study employs the U-Net architecture to detect landslides in satellite imagery, demonstrating high precision and recall rates. The findings highlight the potential of deep learning for automating landslide detection, aiding early warning systems and mitigating risks to communities and infrastructure.

Malaria Detection Model on TensorFlow [Github](#)

- This project involves building a machine learning model to classify the cell images either it is affected or unaffected by malaria, during my course on learning TensorFlow.

Sign Language Detection using YOLOv5 [Github](#)

- Used **labelmg** for the data annotation and finetuned YOLOv5 for Sign Language detection on local dataset.

Human Emotion Detection [Github](#)

- This project involved building the machine learning model using TensorFlow to find the humans' emotion using the images of their face.

Audio-Matching-Shazam-Style-Using-Hashing [Github](#)

Supervisor: [Dr. Ahmad Salman](#)

- Leveraging algorithms provided by the Shazam Official Repository, our aim is to establish robust audio fingerprinting and hashing mechanisms to enable efficient identification and matching of audio tracks within our dataset.

Live Feed Surveillance Robot using Raspberry Pi

- The robot will utilize the Raspberry Pi OS to process video feeds and use OpenCV for real-time object detection and tracking. Involved live feed surveillance robot using raspberry pi model 4 OS and OpenCV programming.

RFID Based Security System with STM 32 Discovery Board [Github](#)

- Implement firmware to authenticate RFID tags, activate the lock mechanism, and trigger alerts for unauthorized access attempts, while leveraging STM-32 discovery board's built-in features for system control and management.

Honors and Awards

- Selected as an Undergraduate **Research Intern** for the First Cohort of **UGRIP** by **MBZUAI**.

Skills

Programming & Deep Learning: PyTorch, Tensorflow (Keras), OpenCV, Docker, Mlflow, ECR, E2C Machine

Languages: Python, C/C++ , embedded C, Javascript (React.js), HTML/CSS, Next.js

Tools: MATLAB, STM Cube IDE, VS Code, Git, AutoCad, Figma, PyCharm, Raspberry Pi OS

Design: Figma, AdobeXD, Adobe Illustrator, Adobe Photoshop, Sketch, Wordpress Theme design

Conferences

- **International Conference on Artificial Intelligence (ICAI'21)** Core Team Member
- **Devfest'21** (Core Team Member)
- **CodeFest'21** (Core Team Member)
- **Solution Fest 21** (Core Team Member)

EXTRACURRICULAR ACTIVITIES

- Deputy Director of Team Graphics in **Orientation of Nust 2022**
- Executive Member **TABA** Youth Chapter Nust

Volunteer Work

- RIZQ NUST
- TABA Youth Force NUST
- Youth Insight Pakistan
- Khalq Foundation Pakistan
- Australian Indigenous Mentorship Experience (AIME)