Ahsan Bilal

Ahsan.Bilal-1@ou.edu |GitHub| +92-317-3047705 | +1-405-493-3044 | LinkedIn | Website

Personal Website Link

EDUCATION

University of Oklahoma — Norman - **Oklahoma, USA**
PhD Computer Science *(Research focus on Machine Learning, Deep Learning, LLMs and Computer Vision)* — ***2024–2029***

National University of Sciences and Technology — **Islamabad, PK**
Bachelor of Electrical Engineering *(Specialization:, Machine Learning, Deep Learning, Digital Image Processing)* — ***2020-2024***

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

WORK EXPERIENCE

Machine Learning Engineer — **Islamabad, PK**
Cowlar Design Studio (YC 21) – Based in USA
*Starting my career at **Cowlar Design Studio**, I have been dedicated to optimizing our product by refining computer vision features for industrial automation, particularly in optical fiber insertion. I also explored deployment strategies on servers. Additionally, I contributed to the development of an in-house annotation tool and integrated AI to automatically annotate domain-specific images based on an initially trained model.* — ***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 **" Person Identification Using Gait with Fused Graph and 3D Convolutional Architectures "** 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.* — ***Jan2023 – Present***

UG Research Assistant — **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.* — ***March 2023 – Present***

UI/UIX 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

- Review received from Journal Paper ***"Person Identification Using Gait with Fused Graph and 3D Convolutional Architectures"*** **HELIYON**-D-24-07290. Working on review.
- Working on improved version ***"Stacked Conditional Generative Adversarial Networks for Jointly Learning Shadow Detection and Shadow Removal"*** journal paper

Honors and Awards

- Selected as an Undergraduate **Research Intern** for the First Cohort of **UGRIP** by **MBZUAI**.
- My Final Year Project received the 1st Best Adjudged Industrial Project Award at the NUST Open House 2024.
- Winner of Prime Minister Laptop Scheme

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

Lanslide 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 fine-tuned **Yolov5** for **Sign Language detection** on local dataset.

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.

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, Rasberry 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