Shafiq Muhammad Hamza

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About me

As a proficient programmer with expertise in deep learning algorithms and hands-on experience in various imaging techniques, I am a dedicated Masters student who is passionate about applying my knowledge to solve real-world problems. With strong analytical and problem-solving skills, I am committed to collaborating with team members to deliver high-quality results. Additionally, my excellent communication and interpersonal skills enable me to effectively convey my ideas and work seamlessly within a team.

Professional Experience

2020/09 – 2021/08
Faisalabad, Pakistan

Research Assistant
University of Engineering and Technology, Lahore

- As part of a funded project titled "CNN-based Intelligent Heart Monitoring" in collaboration with my supervisor at the University, I applied Convolution Neural Network (CNN) to analyze a heart sound dataset. Through the use of advanced CNN techniques, I was able to achieve highly accurate results of up to 98%. Additionally, I deployed the resulting network on an STM32 microcontroller.

Education

2021/08 – 2023/12
Gwangju, South Korea

Master of Science in Information and Communication Engineering
Chosun University

- Conducted research on image colorization and deep learning technologies, with a focus on developing and testing deep learning models for image colorization. Research findings to be published soon.

2016/09 – 2020/08
Faisalabad, Pakistan

Bachelor of Science in Electrical Engineering
University of Engineering and Technology, Lahore

- I completed my undergraduate with a focus on machine learning and robotics. I worked on various projects that involved applying machine learning algorithms to solve real-world problems. In my final year, I led a team to develop a human-robot interaction system using behavioural-based modelling. Additionally, I have developed strong programming skills in Python, Matlab, and C/C++.

Projects

2021/09 – 2021/12

Old Image Restoration and Enhancement
Funded by SK Telecom

- I successfully implemented deep learning algorithms to colorize restored images as part of a project funded by SK Telecom. My role involved developing and implementing the colorization algorithm, which required advanced knowledge of deep learning and image processing techniques.

2020/08 – 2021/08

Intelligent Heart Monitoring System

- This project utilizes a CNN model to differentiate between normal and abnormal heart signals by processing heart sound signals as input. The model yields a high accuracy rate of 98% and can effectively detect murmurs in heart sounds.

2019/07 – 2020/08 **Human-Robot Interaction through Behavioral based Modeling**
Final Year Project
- This project involves designing a robot that utilizes computer vision techniques for human interaction, including face detection, recognition, expression and gesture recognition, and sign language recognition for Deaf individuals. The project aims to improve human-robot interactions and accessibility, with potential applications in various industries.

Skills

Python | Pytorch | Tensorflow | C++ | Matlab | OpenCV | Robotics | Cuda

JavaScript, HTML, CSS | Microcontrollers such as Raspberry Pi, STM32 | 3D Reconstruction

Awards

2020 **Final Year Project Funding**
NIGRI

2019 **University Merit Scholarship**
University of Engineering & Technology, Lahore
- I was awarded a Merit scholarship due to my highest GPA in batch.

2019 **Best Semester Project**
University of Engineering & Technology, Lahore
- I received the Best Semester Project award during my 5th semester for developing a height measurement system using OpenCV. The project involved utilizing advanced computer vision techniques to accurately measure the height of objects, demonstrating my proficiency in the field.

Publications

ColorFormer: A novel colorization method based on the transformer
Under review in IEEE Transactions on Image Processing

ColorWarp: Image Colorization using Color-Features and Adversarial Learning
Published in IEEE Access

An image colorization method using a transformer
KICS Summer Conference 2023

ColorGAN: Generative Adversarial Network based Image Colorization
Proceedings of KIIS Autumn Conference 2022 Vol. 32, No. 2.

2022-I252(Pn-2022-0421)_트랜스포머 블록을 포함하는 GAN 기반의 모델을 이용하여 흑백 이미지를 컬러링하기 위한 전자 장치 및 그 동작
Patent (Submitted)

2022-I251(Pn-2022-0422)_GAN 기반의 모델을 이용하여 흑백 이미지를 컬러링하기 위한 전자 장치 및 그 동작
Patent (Submitted)

Interests

- Reading
- Running
- Photography, Videography
- Travel
- Sports and fitness activities
- Music

Languages

English (IELTS 7) | **Korean** (KIIP Level 2)