Zainullah **KHAN**

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Education

2020 - Present — Masters in Robotics and Artificial Intelligence - **National University of Sciences and Technology**

Deep Learning | Machine Learning | Computer Vision | Robot Mechanics | Medical Robotics | Legged Robotics

2015 - 2019 — Bachelors in Electronic Engineering - **Balochistan University of Information Technology, Engineering and Management Sciences**

Analog Electronics | Digital Electronics | Embedded Systems | Computer Vision | Deep Learning | Simulation | Robotics

Experience

Present – June 2022 — AI Developer - **SiParadigm Diagnostic Informatics**

- Developed Windows applications using Universal Windows Platform.
- Used interoperability between C++ written .dll files and C# written application.

Universal Windows Platform | Docker | Git

May 2022 – July 2021 — Research Associate - **National Center for Artificial Intelligence**

- Trained and deployed speech recognition models.
- Implemented automated ML pipeline.
- Created a batching module that extracted frames and audio from YouTube live streams.
- Sentiment analysis pipeline implemented on tweets relating to certain keywords.

PyTorch | Tensorflow | NeMo | Riva | Web Scraping | NLP | Docker | Git | Github

Present – August 2019 — Computer Vision and Deep Learning Developer - **Fiverr**

- Over 150 computer vision, deep learning and python scripting projects.
- Developed a cancer detection model using histopathological slides.
- Developed path planning for a warehouse robot.

PyTorch | Tensorflow | Embedded Systems Programming | Web Scraping | NLP | Docker | Git | Github

September 2020 – July 2019 — Intern - **Control Automotive and Robotics Lab**

- Created physics simulation for robot controllers using open dynamics engine.
- Developed deep learning based snake robot navigation system.

Physics Simulation | Legged Robotics | Embedded Systems | 3D Printing | Robot Vision

Skills

Programming Languages	Python, C/C++, C#, Matlab
Platforms	Tensorflow, PyTorch, .Net, Universal Windows Platform
Technologies	Docker, Git, Github

Projects

OpenCV 3D Renderer — 2022

https://github.com/zainkhan-afk/OpenCV-3D-Renderer
An OpenCV based 3D object renderer.

OpenCV | Python

Differential Drive Robot Navigation — 2022

https://github.com/zainkhan-afk/Differential-Drive-Robot-Navigation
Differential drive robot navigation using PID and MPC controllers.

Python | Robot Kinematics

Machine learning automation using MLFlow — 2022

https://github.com/zainkhan-afk/MLflow-MNIST-Example
Automated deep learning model training using MLFlow

Python | Docker | MLFlow | PyTorch

Publications

2022 **Khan, Z.**, Naseer, F., Khan, Y., Bilal, M. and Butt, M.A., 2022. Study of Joint Symmetry in Gait Evolution for Quadrupedal Robots Using a Neural Network. Technologies, 10(3), p.64.

2022 **Khan, Z.**, Naseer, F., Iqbal, K.F., Ali, S., Sajid, M. and Ayaz, Y., 2022, March. Smooth Gait Generation for Quadrupedal Robots Based on Genetic Algorithm Optimization. In 2022 2nd International Conference on Artificial Intelligence (ICAI) (pp. 122-126). IEEE.

2022 Nadeem, Z., **Khan, Z.**, Mir, U., Mir, U.I., Khan, S., Nadeem, H. and Sultan, J., 2022. Pakistani traffic-sign recognition using transfer learning. Multimedia Tools and Applications, 81(6), pp.8429-8449.

2019 Mir, U., **Khan, Z.**, Mir, U.I., Naseer, F. and Shah, W., 2019, December. Evolution of Locomotion Gaits for Quadrupedal Robots and Reality Gap Characterization. In International Conference on Theory and Practice of Natural Computing (pp. 197-207). Springer, Cham.

2018 **Khan, Z.**, Bugti, H. and Bugti, A.S., 2018, November. Single dimensional generalized kalman filter. In 2018 International Conference on Computing, Electronic and Electrical Engineering (ICE Cube) (pp. 1-5). IEEE.