Talha Ilyas

Graduate Research Assistant

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About me: By profession, I am an Engineer and have decent working experience in the field of Machine Learning, Computer Vision and Artificial Intelligence. I have recently completed my master's degree and now looking forward to pursuing a PhD degree from a reputed institute.

WORK EXPERIENCE

01/09/2019 – PRESENT – Jeonju, South Korea

RESEARCH ASSISTANT – ROBOT VISION LAB, JEONBUK NATIONAL UNIVERSITY

I am leading ongoing funded project on precision agriculture while forecasting future endeavors. Currently, working on different projects related to smart farming like deploying, and developing state-of-the-art deep learning algorithms to solve the problems like crop-weed classification, insects/pests' infestation and disease detection, crop instance localization, and segmentation for precision agriculture. The aim of such fusion between deep learning and precision agriculture is to support high productivity and profitable horticulture systems along with safe and nutritious food and create a risk free and efficient recoverable environment for the communities.

We are also, working on depth estimation, optical flow for developing autonomous harvesters to increase farm yield and productivity. I have also done some projects on implementation of ML algorithms on edge devices, autonomous driving systems, 3D object detection, GANs and Stereo Vision.

01/10/2018 – 01/09/2019 – Islamabad, Pakistan

RESEARCH TRAINEE – AIR UNIVERSITY, DEPT. OF AVIONICS AND AERONAUTICS.

I worked in Communication Security and Embedded System Lab as a researcher in project namely, End-to-End Secure Voice Communication Over Voice Channel.

15/01/2018 – 01/10/2018 – Lahore, Pakistan

ELECTRICAL ENGINEER – MAN ENERGY SOLUTIONS (FORMER: MAN DIESEL AND TURBO).

• Major maintenance of engine, VFD installation and repairing, and motor over-hauling.

15/09/2017 – 14/11/2017 – Faisalabad, Pakistan

ELECTRICAL SYSTEMS ENGINEER – WASA ELECTRIC CELL & ENERGY MANAGEMENT DEPT.

• Installation of PFI (Power Factor Improvement) Plants and auditing, recording, paying, monitoring, and keeping the statistical record of all Electricity Usage of WASA.

EDUCATION AND TRAINING

01/09/2019 – 20/08/2021 – 567, Baekje-daero, Deokjin-gu, Jeonju-si, Jeonbuk, Jeonju, South Korea

MASTER OF SCIENCE IN ELECTRONICS AND INFORMATION ENGINEERING – Jeonbuk National University (JBNU).

- Advance Neural Networks
- Machine Learning
- Image Analysis and Understanding
- Visual Intelligence
- Parallel Computer Vision
- Technical Paper Writing

Field(s) of Study: Artificial Intelligence, **EQF level 7**
CGPA: 4/4

01/09/2013 – 31/08/2017 – GT road Lahore, Lahore, Pakistan

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING – University of Engineering and Technology, Lahore.

- Probability and Statistics, Linear Algebra, Calculus
- Microprocessor Systems, Control Systems
- Power System Design, Operation, Control and Distribution
- Programming fundamentals, Data Structures
- Signals and Systems, Digital Signal Processing
- Integrated Electronics and Logic Circuits
- Entrepreneurship

Field(s) of Study: Electrical Engineering, **EQF level 6**
CGPA: 3.37/4

TEST SCORES

IELTS: 7.5 Bands (L-8, R-8.5, W-6.5, S-7)
Graduate Assessment Test (GAT): 90.3 Percentile

MACHINE LEARNING FRAMEWORKS AND PROGRAMMING LANGUAGES

Digital Skills

Machine Learning Frameworks (Backend)
- Tensorflow
- Keras
- PyTorch
- Scikit-Learn

Programming Languages
- Python
- MATLAB
- HTML/CSS
- C/C++
- JAVA

Frontend/GUI/API Development
- Flask (Server side)
- PYQT/Tkinter (Python GUI)
- Full Stack Developer

Simulation Software / Microcontrollers
- Simulink (Matlab)
- Proteus
- ARM Cortex M4-F
- My-Rio FPGA
- Arduino (UNO, MEGA, Nano)

PUBLICATIONS

Journals and Conferences

- **Ilyas, T.**; Khan, A.; Umraiz, M.; Kim,: "DAM: Hierarchical Adaptive Feature Selection using Convolution Encoder Decoder Network for Strawberry Segmentation", Frontiers in Plant Science, Volume 12, Article 591333.
- **Ilyas, T.**; Khan, A.; Umraiz, M.; Kim, "SEEK: A Framework of Superpixel Learning with CNN Features for Unsupervised Segmentation", Electronics 2020, 9, 383.
- Khan, A; **Ilyas,T.**; Umraiz,M ; Z,Mana M.; Kim ," CED-Net: Crops and Weeds Segmentation for Smart Farming Using a Small Cascaded Encoder-Decoder Architecture", Electronics 2020, 9(10), 1602.
- **Ilyas, T.**; Mannan, Z. I.; Khan, A; Azam, S; De Boer, F; Kim, H. "TSFD-Net: Tissue specific feature distillation Network for Nuclei Segmentation and Classification," ELSEVIER Neural Networks (Under Review) [ID: NEUNET-D-21-00631].
- **Ilyas, T.**; Khan, A.; Umraiz, M.; Kim,: "Multi-Scale Context Aggregation for Strawberry Fruit Grading and Disease Phenotyping", IEEE Access, (Under Review) [ID: Access-2021-26410].
- **Ilyas,T.**; Kim, H. "A Deep Learning Based Approach for Strawberry Yield Prediction via Semantic Graphics." International Conference on Control, Automation and Systems, ICCAS, 2021.
- **Ilyas, T.**, Kim, H. "LIP Net: Real-Time Semantic Segmentation of Person Body Parts", The Journal of Korea Robotics Society, 2020.7, 110-112 (2pages).
- Park, J; **Ilyas,T.**; Lee, M ; Kim H, "Low-Cost 3D Sensor System: Using Image-Based Laser Triangulation" The Journal of Korea Robotics Society, 2020.7, 105-107 (2pages).
- **Ilyas,T.**; Kim, H.; Kim, S. "Tumor Detection in Breast Histopathology Images vis modified Faster-RCNN." The Journal of Korea Robotics Society, 2021.6, 105-107 (2pages).

ONGOING FUNDED PROJECTS & ATTENDED CONFERENCES

Ongoing Funded Projects

- Paprika Disease Detection and Disease Severity Indication via Machine Intelligence.
- Unsupervised Depth Estimation for Better Segmentation of Complex and Cluttered Agricultural Scenery by Computer Vision.
- Creating and Automated Pipeline for Extracting Crown and Detecting Young Leaf and Flower Sprouts using Convolutional Neural Networks.
- Multi-Crop Artificial Intelligent Weeding Robot (9 Year Project by KRID).
- Segmentation of Strawberry Fruits w.r.t their Maturity Level using Machine Vision.
- Automated Mitosis Detection in Breast Cancer using Histology Images.
- Nuclei Instance Segmentation and Classification by Multi Tissue Histology Images.
- Activity Recognition using Artificial Intelligence.

Conferences Attended

- Presented Paper in the 34th symposium of Institute of Control, Robotics and Systems (ICROS), 2019, Gunsan, South Korea.
- Presented Paper in the 35th symposium of Institute of Control, Robotics and Systems (ICROS), 2020, Sockcho, South Korea.
- Presented Paper in the 36th symposium of Institute of Control, Robotics and Systems (ICROS), 2021, Yeosu, South Korea.
- Will Present Paper in 21st International Conference on Control, Automation and Systems (ICCAS), 2021, Jeju, South Korea.