Abdul Wasay Sardar

MS in Computer Information System and Networks

Introduction

I am a Computer Engineer with over 4 years of research experience specializing in Artificial Intelligence, Computer Vision, and Deep Learning applied to distributed systems (Federated Learning). I have strong technical proficiency in Python, PyTorch, TensorFlow, C/C++, and MATLAB, with practical experience in Fast-API, Flutter, and embedded sensors.

Professional Experience

09/2023-11/2025 **Researcher in AI & Federated Learning**, *Univeristy College Dublin, Ireland*.
- Design a Federated Label-Distribution-Aware Margin Learning for Class-Imbalanced Human Activity Recognition
- Design a Federated Framework for Handling Inter-Class Confusion for Imbalance in Human Activity Recognition
- **Tools and Algorithms:** Python, Federated Learning Framework, LSTM, DeepConvLSTM, RNN, TinyHAR, TensorFlow, PyTorch

03/2021-03/2023 **Research Engineer (AI)**, *Korea Aerospace University, South Korea*.
- Researcher in Artificial Intelligence
- Developed a Mobile sensors based platform of Human Physical Activities Recognition for COVID-19 spread minimization
- Develop Multi-Linguistic Heterogeneous Abusive Text Analytics and Demographic Analysis Based User's Profile Modeling and Community Clustering
- Developed an AI-based Mobile App to Control the Spread of COVID
- **Tools and Algorithms:** Python, BiLSTM, LSTM, Conv1D, BERT, Computer Vision, YOLO, TensorFlow, PyTorch

09/2020-02/2021 **Research Assistant**, *University of Engineering & Technology, Pakistan*.
- Develop a computer vision based UAV Obstacle tracking system
- **Tools and Algorithms:** Python, Object Tracking, Image Classification, Deep Sort, YOLO.

Education

03/2021-01/2023 **MS**, *Computer Information Systems and Networks*, **Korea Aerospace University**, South Korea.
- Deep Learning
- Machine Learning
- Parallel Computing
- Metaverse Technology
- **Thesis Title:** Multi-Linguistic Heterogeneous Abusive Text Analytics and Demographic Analysis Based User's Profile Modeling and Community Clustering
- *GPA - 4.13/4.5*,

09/2016-09/2020 **BS**, *in Computer Engineering*, **COMSATS University Islamabad**, Pakistan.
- C/C++
- Embedded System
- Wireless Communication Systems
- Algorithms & Data Structure
- Data Communication and Computer Networks
- **Thesis Title:** Deep Learning based UAV Assisted Distributed Platform for Crowd Source Management
- *GPA - 3.22/4.0*,

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Work Experience

Human Physical Activities Recognition for COVID-19 spread minimization.

- Collected set of activities mobile sensor dataset that is helpful in minimizing COVID-19 Spread
- Activities Classification and Distance calculation during performing that activites using GPS sesnor
- Develop Mobile Application for the collection of sensor and GPS dataset [Dataset] [Research Publication]

Covid Contact Tracing Using Bluethooth iBeacon Scanner.

- Design a Access point contains the contact traces of all the people who visit this place [Application Code]

Social Network Ranking and Profile Modeling Software.

- Developed an SN ranking software based on followers/following tweets
- Profile modeling based on cyberbullies via DL, NLP, NodeJS, and Flutter [Mobile App]

Vital Sign Monitoring Using Radar Sensor (Sense2GoL).

- Developed a Radar IQ Signal System for heart rate and breathing measurement.
- Micro-controller (XMC4700 MCU), Radar Sensor (Sense2GoL), EEG Sensor [Source Code]

Heart Rate and Breathing Rate Measurement using ECG Signals) .

- Developed a ECG Signal based Heart Rate and Breathing Rate Measurement
- Signal Processing, Embedded System, Miro-Controller [Source Code]

Cyberbullying Forensic Engine and Plug-in for Cyberbullying-Free Heterogeneous Social Networks leveraging Deep Learning.

- Abusive language and user profile modeling based on user context (temporal, spatial, demographics) in heterogeneous social networks
- Developed a Cyberbullying-free trustworthy SN modeling and cyberbullying prevention/control algorithms
- NLP, YOLO, MobileNet, BERT, BiLSTM, and Python

Deep Learning based UAV Assisted Distributed Platform for Crowd Source Management.

- Develop a framework for the UAV based Crowd Source Management
- Haar-Cascade, template matching, YOLO, and Mask-Region Based Convolutional Neural Networks.[Source Code] [Research Publication]

Research Publications

Journals, *Published*.

1. **Abdul Wasay Sardar**, Farman Ullah, Jamshid Bacha, Jebran Khan, Furqan Ali, and Sungchang Lee. "Mobile sensors based platform of Human Physical Activities Recognition for COVID-19 spread minimization." [Computers in biology and medicine IF: 6.3], (SCIE).
2. Bacha, Jamshid, Farman Ullah, Jebran Khan, **Abdul Wasay Sardar**, and Sungchang Lee. "A deep learning-based framework for offensive text detection in unstructured data for heterogeneous social media." [IEEE Access IF: 3.9], (SCIE).
3. Bacha Jamshid, Jebran Khan, **Abdul Wasay Sardar**, Ullah Farman, Junaid Iqbal. and Sungchang Lee. " Mobile Sensors based Platform for COVID-19 Contact Tracing Leveraging Artificial Intelligence [Journal of Ambient Intelligence and Humanized Computing IF: 3.66], (SCIE).
4. Ali, Furqan, Farman Ullah, Junaid Iqbal Khan, Jebran Khan, **Abdul Wasay Sardar**, and Sungchang Lee. "COVID-19 spread control policies based early dynamics forecasting using deep learning algorithm." [Chaos, Solitons & Fractals IF: 6.698], (SCIE).
5. Ullah, Farman, **Abdul Wasay Sardar**, Mariam Salem Saeed Almeqbaali, Meera Saeed Obaid Aldhaheri, and Salama Obaid Altheeb Al Ali. "Deep Learning based UAV Assisted Distributed Platform for Crowd Source Management." [International Conference on Signal Processing & Information Security (ICSPIS)].

Journals, *Under Review*.

1. **Abdul Wasay Sardar**, Ullah Farman, Jebran Khan, Bacha Jamshid, and Sungchang Lee. "Heterogeneous Abusive Big Data Analytic and Demographic Analysis based Individual and Group Profile Modeling" (SCIE) Under Review.
2. **Abdul Wasay Sardar**, Michael O'Neill, and Mark Connor. "ederated Label-Distribution-Aware Margin Learning for Class-Imbalanced Human Activity Recognition" (SCIE) Under Review.
3. **Abdul Wasay Sardar**, Michael O'Neill, and Mark Connor. "Federated Framework for Handling Inter-Class Confusion for Imbalance in Human Activity Recognition" (SCIE) Under Write-up.

Awards and Distinctions

- Fully Funded MS Scholarship at Korea Aerospace University, South Korea
- Graduated among top 3 (2th position) of 2020 batch at Department of Electrical and Computer Enginnering, COMSATS, Pakistan
- Fully-Funded BS Final Year project, COMSATS, Pakistan

Project Participation

National Research Foundation (NRF).

- Research on Cyberbully Forensic Engine and Plug-in for Cyberbully-Free Heterogeneous Social Networks leveraging Deep Learning
  - Fund: 50 Million KRW per year through NRF
  - Duration: June 2022 - June 2025

National Research Foundation (NRF).

- Research on Epidemics Contact Tracing, Prediction, and Prevention Leveraging Artificial Intelligence focusing on COVID-19
  - Fund: 162 Million KRW per year through NRF and 150 SEK through VR (Sweden)
  - Duration: December 2020 - January 2022

Academic Skills

Programming & Simulation.

Python (Advanced), C++, MATLAB, TensorFlow, Scikit-Learn, Flutter, FastAPI, RapidMiner, Linux/Unix environments.

AI & Machine Learning.

During my research and teaching, I have a good understanding of concepts related to ML (Random Forest, Decision Tree), Deep Learning (CNN, LSTM), Computer Vision, NLP, and Federated Learning

Network Technologies.

Mobile Sensor Networks, IoT Data Processing, Distributed System Design, UAV Communication Links

Social Skills.

Good at making new friends, adjustment with new teammates by studying in a multinational environment and interaction with people of diverse ethnicity and nations

Languages

English:	Official/Academic Language	*(Advanced level speaking, reading and writing skills)*
Korean:	Learning in Korea since 2021	*(Beginner)*
Urdu:	National/Official Language	*(Advanced level speaking, reading and writing skills)*

References

Prof. Dr. Sungchang Lee,

- Professor at Korea Aerospace University, South Korea
- Email: **sclee@kau.ac.kr**

Prof. Dr. Farman Ullah,

- Professor at United Arab Emirates University, UAE
- Email: **farman@uaeu.ac.ae**