KHAWIR MAHMOOD

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House 74-B, Street 19, Gulzar-e-Quaid,
Rawalpindi, Pakistan

EDUCATION

MS **Software Engineering [CGPA: 4/4]** **2017-19**
National University of Sciences and Technology (NUST), Pakistan

BE **Software Engineering [CGPA: 3.07/4]** **2001-05**
National University of Sciences and Technology (NUST), Pakistan

HONORS AND AWARDS

President's Gold Medal for securing 1st Position in MS Software Engineering

RESEARCH EXPERIENCE

MS Researcher **2018-19**
Department of Computer Software Engineering, MCS, NUST
Thesis: ***Predicting Optimal Tuning Parameters for GPU Compute Kernels***

- Converted the optimization problem into a sequence-to-sequence translation problem borrowing models from the NLP domain.
- Developed a novel deep learning architecture which predicts tuning parameter sets for convolution kernels of MIOpen (AMD's ML library) with over 90% accuracy.

Research Adviser **2019 onwards**
Center of Data & Text Engineering and Mining
Actively engaged in academic collaboration with industry to meet demands in NLP and DL domains at national level.

TEACHING EXPERIENCE

Assistant Professor **2019 onwards**
Department of Computer Software Engineering, MCS, NUST

Teaching: Undergraduate courses in software engineering programs (~60 students per semester)

- Operating Systems – Fall 2019
- Object Oriented Programming, Software Quality Engineering – Spring 2020
- Human Computer Interface – Summer 2020
- Software Project Management – Fall 2020
- Artificial Intelligence – Spring 2021 & 2022
- Fundamentals of Programming, Data Structures and Algorithms – Fall 2021

Masters Students Co-Supervised

- F Khakwani, "Dengue multiclass prediction with early clinical, demographic & lab data", Mar 21.
- J. Ahmed, "Fake news detection using neural networks", Apr 21.
- M. Mubashir, "Detection of fake apps through hybrid ML and NLP techniques", Mar 22
- M. Ali, "Creation of adversarial attacks for textual data from diverse domains", May 22.
- R. Munaf, "Urdu summarization using pre-trained language models", Jul 22.
- I. Javed, "Disaster events identification from social media data using Deep Learning", Aug 22
- L. Zainab, "A Deep Learning based framework for low-light image enhancement", Aug 22
- S. Siddique, "Hyper-parameter optimization for ML algorithms", Aug 22
- M. Noor, "Image-to-Image translation using Generative Adversarial Networks", Sep 22
- M. Aslam, "Incorporating ML to predict risk assessment in project timeline management", Sep 22
- S. Farid, "Electricity theft detection using Deep Learning", Sep 22

- S. Ali, “Personality detection using Deep Learning”, Sep 22
- A. Fatima, “Automated teeth lesion diagnosis based on deep learning”, Oct 22
- M. Daud, “Using Vision Transformers for Low Level Vision Enhancement”, Jan 2023
- M. Gul, “Selecting SDLC models from requirement documents using NLP”, Feb 23
- H. Kamal, “Multi-Agent Reinforcement Learning for "Hide & Seek" Problem”, Apr 23

Undergraduate Final Year Projects Supervised

- Real Time Tweet (top trending) Analysis (RETTA), 2021
- Smart Web Application for Real Estate Prediction (SWARP), 2021
- Satellite Image Change Detection (SICD), 2022
- Anomaly Detection in Video Surveillance, 2022

PUBLICATIONS

Journal Publications

- AR Raza, K Mahmood, MF Amjad, H Abbas and M Afzal, “On the efficiency of software implementations of lightweight block ciphers from the perspective of programming languages,” Future Generation Computer Systems, vol. 104, no. 3, 2020, pp. 43-59, https://doi.org/10.1016/j.future.2019.09.058
- M Waheed, H Afzal, K Mahmood, “NT-FDS—A Noise Tolerant Fall Detection System Using Deep Learning on Wearable Devices,” Sensors, vol. 21, no. 6, 2021, pp. 2006, https://doi.org/10.3390/s21062006
- A Fatima, I Shafi, H Afzal, K Mahmood, IT Díez, V Lipari, JB Ballester, I Ashraf, “Deep Learning-Based Multiclass Instance Segmentation for Dental Lesion Detection,” Healthcare 11(3), 347, 2023, https://doi.org/10.3390/healthcare11030347

Conference Paper

- K Mahmood, T Rana, AR Raza, “Singular Adaptive Multi-Role Intelligent Personal Assistant (SAM-IPA) for Human Computer Interaction,” Proceedings of 12th International Conference on Open Source Systems and Technologies (ICOSST), Dec 19-21, 2018, pp. 35-41, https://doi.org/10.1109/ICOSST.2018.8632189

PRESENTATIONS/ TRAININGS/ INVITED LECTURES

IEEE Conference *(Paper Presenter)* **20 Dec 2018**
12th International Conference on Open Source Systems and Technologies (ICOSST)

Deep Learning Workshop *(Trainer)* **26 May 2021**
Continuous Professional Development (CPD) Workshop – Pakistan Engineering Council.

4 Months Diploma in Artificial Intelligence *(Trainer)* **Jun - Oct 2022**
Professional Development Center (PDC), National University of Sciences and Technology

1 Month Diploma in Data Science *(Trainer)* **Nov 2022**
Professional Development Center (PDC), National University of Sciences and Technology

PROFESSIONAL CERTIFICATIONS/ SPECIALIZATION

Deep Learning Specialization by *deeplearning.ai* at *Coursera.org* **10 Sep 2020**
Verifiable at: http://coursera.org/verify/specialization/TARL8VFXLJRV.

IELTS

Overall Band Score: 8.0 (Listing: 8.0, Reading: 8.5, Writing 7.0, Speaking: 8.0) **CEFR Level:** C1

PROFESSIONAL AFFILIATIONS

Pakistan Engineering Council (PEC) ***Registered Engineer*** (COMP/19591) **26 Nov 2020**

COMPUTER SKILLS

Programming: Python, Javscript, PHP, C++, Java | **Platforms**: Windows, Linux, AWS
Libraries/ Frameworks: TensorFlow, PyTorch, Django, Flask, Docker, MERN

REFERENCES

Dr. Hammad Afzal, Associate Professor, Department of Computer Software Engineering, National University of Sciences & Technology, Email: hammad.afzal@mcs.edu.pk, Phone: +92-334-8507435

Dr. Haider Abbas, Professor, Head of Department of Information Security, National University of Sciences and Technology, Email: haider@mcs.edu.pk, Phone: +92-300-9634911