

# MUDASSIR IBRAHIM AWAN

MS-PhD Fellow  
Haptics and VR Laboratory  
Kyung Hee University, South Korea

Email: mudassir.awan@hotmail.com  
miawan@khu.ac.kr  
Web: <https://mudassir-awan.github.io>  
Cell: +82-10-9998-9471

## ACADEMIC QUALIFICATIONS

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### MS-PHD COMBIBND STUDENT IN COMPUTER SCIENCE

[SEPT 2018 – CONT]

Kyung Hee University Global Campus  
South Korea

CGPA: 3.785 out of 4.3, (91.75%)

Currently, I am a MS-PhD fellow and a research assistant in Haptics and Virtual Reality Lab at Kyung Hee University, South Korea. I'm advised by Professor Seokhee Jeon and working on data-driven based modelling and rendering of haptic properties, psychophysics and deep learning to generate realistic haptic feedback in VR/AR environments.

### BACHELOR OF ENGINEERING (BE) IN ELECTRONICS ENGINEERING

[AUG 2012 – JUL 2016]

Karachi Institute of Economics and Technology (KIET)

Karachi, Pakistan

CGPA: 3.63 out of 4.0, A – Grade, (84%)

Specialized in Electronics and completed Electives are Automation and Robotics, Digital Image Processing, Navigation and Guidance, FPGA, Industrial Control Electronics, Embedded System Design, and Power Electronics. There I have also actively participated in team projects such as image processing-based line following robot and hounding robot.

## PROFESSIONAL EXPERIENCE

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### Research Assistant

[Sept 2018 – Cont.]

Haptics and VR Laboratory, Kyung Hee University, South Korea

Here primarily my research focuses on modeling and rendering of haptic textures using both online and offline techniques with stochastic and deep learning algorithms. Furthermore, I am also working on a number of projects which includes building complete frameworks for teleoperation, digital twin, haptic drones and wearable devices for VR/AR applications.

### Research Assistant

[March 2017 – Feb 2018]

Soongsil University, South Korea

There I explored and worked on Battery Managements System (BMS) for electric vehicles. MY key duties were to design efficient algorithms to improve the health of Lithium batteries while analyzing their charge and discharge profiles.

### Project Engineer

[Aug 2016 – Feb 2017]

Inverex Power, Pakistan

Being a project Engineer, there I have successfully designed and commissioned number of on grid, off grid and hybrid solar systems ranging from 2KW to 60 KW. I have also commissioned several submersible pumps along with MPPT/PWM inverter drives.

### Graduate Research Assistant

[July 2016 – Aug2016]

CIS Robotics Lab, NED University, Karachi, Pakistan

Working on an open-source 3D prosthetic hand to enable it with haptic feedback through tactile sensations by using coin vibrators or different Stimulators. I am also writing a Research paper on it.

### Design Engineer, Summer Internship

[May 2016 – June 2016]

Haptika.tech, Pakistan

Worked on a haptic feedback project named as LserTech in a challenging environment, which includes core concepts related to Linear Integrated Circuits, C programming and embedded systems.

### Internee, Summer Internship

[May 2015 – June 2015]

Pakistan Aeronautical Complex, Kamra, Pakistan

Worked in Avionics Production Factory and understood the maintenance and modifications of different Avionics units of Mirage Aircraft.

### Maintenance Engineer, Summer Internship

[JULY 2015-JULY 2015]

DP world, Karachi, Pakistan

Worked on heavy cranes such as RTG, RS and STS. Understood their gantry, hoist and trolley motions. Analyzed the system of motor control, PLC Ladder Logic, Electrical Drives, Encoders and Sensors.

## PUBLICATIONS (PEER REVIEWD)

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1. **Predicting Perceptual Haptic Attributes of Textured Surface from Tactile Data Based on Deep CNN-LSTM Network** in Proceedings of the 29th ACM Symposium on Virtual Reality Software and Technology (VRST 2023)
2. **Model-Mediated Teleoperation for Remote Haptic Texture Sharing: Initial Study of Online Texture Modeling and Rendering** in IEEE - International Conference on Robotics and Automation (ICRA 2023), London, UK
3. **DroneHaptics: Encountered-Type Haptic Interface Using Dome-Shaped Drone for 3-DoF Force Feedback** in IEEE - International Conference on Ubiquitous Robots (UR 2023), Honolulu, USA.
4. **Surface Texture Classification Based on Transformer Network** in Korea HCI (KHCI 2023)
5. **Vibrotactile stimulation for 3D printed prosthetic hand** in IEEE International Conference on Robotics and Artificial Intelligence (ICRAI 2016), Rawalpindi, PK

## TECHNICAL SKILLS

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- ✓ Modeling Haptic Properties
- ✓ Psychophysical studies
- ✓ Deep Learning
- ✓ Time series data analysis
- ✓ Signal processing
- ✓ Programming: **Python** (Advanced level), **C/C++** (Intermediate level), **Matlab** (Intermediate level)
- ✓ 3D-Design/VR Tools: **Fusion 360** (Intermediate level), **Unity** (Intermediate level), **Blender** (Intermediate level)

## HONORS AND AWARDS

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- ✓ **Travel Grant to visit** IEEE-International Conference on Robotics and Automation (ICRA 2023) held in London, **United Kingdom**; from Kyung Hee University
- ✓ **Travel Grant to visit** World Haptics conference (WHC 2019) held in **Japan**; from Kyung Hee University
- ✓ Full Bright International scholarship to pursue MS-PhD in Kyung Hee University, South Korea
- ✓ Received Merit **scholarships** (Five Times) during Bachelors.
- ✓ Won **Best Design project** in Student Engineering Exhibition 2014.
- ✓ Received University's **President's Honor Badge Award** on distinguished Academic Performance during undergraduate
- ✓ Received University's **College's Honor Badge Award** (Four Times) during undergraduate

## VOLUNTEERING

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- ✓ **Reviewer (IEEE Robotics and Automation Society)** in 20<sup>th</sup> IEEE Conference on Ubiquitous Robots (UR 2023).
- ✓ Conference Volunteer at **Asia Haptics** held in Incheon, South Korea (2018)
- ✓ Worked as **Assistant Director** in Student Engineering Exhibition (SEE 2014) during undergrad.

## TRAVEL HISTORY

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- ✓ London, United Kingdom (2023)
- ✓ Istanbul, Turkey (2023)
- ✓ Tokyo, Japan (2019)
- ✓ South Korea (2017- Cont.)
- ✓ Pakistan (National)

## REFERENCES

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### Waseem Hassan

Post-doctoral Researcher  
University of Copenhagen  
Email: waha@di.ku.dk

Web: <https://hassanwaseem.github.io/>