

ADNAN KAROL

✉ adnanmushtaq5@gmail.com • ☎ +49-15171684018
📍 Allmandring 22C, 70569, Stuttgart, Germany



EDUCATION

Master of Science | INFOTECH

University of Stuttgart

Oct. 2018 – Ongoing

Stuttgart, Germany

Master Thesis: Handcrafted machine learning versus Deep Learning: Decoding neurophysiological signals for the comparison of workload and emotion classification.

Bachelor of Engineering | Electronics and Communication Engineering

University of Mumbai

Aug 2014 – May 2018

Mumbai, India

Bachelor Thesis: CNN and Image Processing Based Plant Disease Detection and Remedy Using Drone.

WORK EXPERIENCE

Master Thesis Student

Fruanhofer IAO/ ISS Universität Stuttgart

Oct 2020 – Ongoing

Stuttgart, Germany

- Handcrafted machine learning versus Deep Learning: Decoding neurophysiological signals for the comparison of workload and emotion classification.
- Use of proper machine Learning algorithms for feature extraction of EEG signals and comparison with Deep Learning architectures.
- Skills : Deep Learning, Machine Learning, Feature Extraction, Signal Processing, EEG, ECG, EDA signals.

Werkstudent in Data Science

Wearable Technologies AG

Apr 2021 – Ongoing

Munich, Germany

- Working in field of Machine Learning and Data Science.
- Vision is to proactively create an intelligent Wearables IoT landscape for the future.

Scientific Research Assistant

Institute for Technical Optics, Universität Stuttgart

Mar 2021 – Ongoing

Stuttgart, Germany

- Working as Research Assistant for development of object detection algorithms for Virtual Reality glasses.
- Use of modern architectures like YOLOv4, etc to detect and localize movement of people in a VR based game-room.

Werkstudent in Data Science

Vialytics GmbH

July 2020 – Mar 2021

Stuttgart, Germany

- Tasks : Train an Object Detector using YOLOv4 to detect road damages using Images and Oracle cloud.
- Use of non-visual smartphone sensors (Acceleration) data on the Smartphone to assess the unevenness of the road (Deployed and Testing).
- Fault and Anomaly analysis for detecting and correcting outliers categorized Roads. Deployed using gRPC and Docker.

Internship in Software Development and Integration

Robert Bosch GmbH

May 2020 – Oct 2020

Stuttgart, Germany

- Internship in software and tool development for semi-autonomous parking systems.
- Working with the Software Integration Team in an agile approach
- Skills: Python, Jenkins, QAC, and Continuous Integration, JIRA, Git

Werkstudent in Software Development

Robert Bosch GmbH

Dec 2019 – Apr 2020

Stuttgart, Germany

- Backend Development, Data management, data visualisation and data analysis.
- Involved in HIL (hardware in Loop) Analysis.
- Worked on Sequence Quality Centre tool, Mf4 and MDF Data, Python Automation Tasks.
- Skills: Python scripting, Python GUI programming, GIT and SQL.

- Working as a Student Research Assistant in the field of Software Development and IoT.
- Implementation of wireless communication and cloud computing for exoskeletons in the convertible factory.
- Creation of PWA of the Web Application for displaying the data from the Exoskeleton.
- Creation of Dashboard for data visualization of the data from the Exoskeleton sensor coming as data stream using Kafka.

SKILLS

- **Language:** English (Fluent), German (Elementary)
- **Scripting/Programming Language:** Python, C, C++, JavaScript, Matlab
- **ML Libraries/Frameworks:** Tensorflow, Keras, OpenCV, Pandas, Scikit-learn, Numpy, Scipy, Matplotlib
- **Cloud:** Oracle Cloud
- **Databases:** MongoDB, MySQL, SQLite
- **Embedded Hardware:** Raspberry Pi, Arduino, ESP32, IMU, EMG sensors
- **Web Technologies/Frameworks:** HTML5, CSS, JSON, Node.js, Express.js
- **Automation:** Jenkins, Docker
- **Others:** Git, Agile, Confluence, JIRA

PROJECTS AND RESEARCH

- LSTM and CNN based Human activity Classification. Keywords-LSTM, CNN, Sensor Fusion, Kalman Filter, TensorFlow, IMU, Raspberry pi.
- EEG Signal Classification using Hand-crafted Machine Learning and Deep Learning. Keywords-EEG, Random-Forest, CNN, Dense Networks.
- Machine Learning Model Deployment using Flask. Keywords-Flask, ML-Deployment.
- CNN and Image Processing Based Plant Disease Detection and Remedy Using Drone. Keywords- CNN, Keras, TensorFlow, Drone, Image Processing, Google Colab.
- Real-Time Object Detection using YOLOv3/Yolov4.
- Smart Desktop Voice Assistant. Implemented a Jarvis like Smart Desktop Voice Assistant. Keywords-Python Programming.
- Volume Unit Meter. Keywords- Arduino, Sound sensor, C programming
- Face Detection Using OpenCV and Haar-Cascades. Keywords: Computer Vision
- MNIST Digit Classification Using Sequential Model. Keywords-Sequential Neural Network.

PUBLICATIONS

LSTM and CNN based IMU Sensor Fusion approach for Human Pose Identification.

WeR11. *Digitalization and Artificial Intelligence applied to Wearable Technologies and Ergonomics*

 July 2020

Plant Disease Detection using CNN and Remedy.

International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

 March 2019

Mobile Hand-off using Wireless CAN protocol: An approach to reduce call drops.

International Research Journal of Engineering and Technology.

 March 2019

HONORS AND AWARDS

1. Received the prestigious Tata scholarship for outstanding overall performance.
2. Awarded the e-fellows.net scholarship in May 2019-Stuttgart, Germany.
3. Participated in Smart India Hackathon and Rajasthan hackathon, which are non stop coding competitions by Government of India.
4. Received well recognition in National Level Project Competition. Networks.
5. Project was selected amongst the Top 5 project of the department by the College.
6. Completed training and courses in various workshops titled Networking and Hardware, Internet of Things, Mobile Making Workshop etc.