

FAIZAN AHMAD

King Fahd University of Petroleum and Minerals, Dhahran , Saudi Arabia
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CAREER SUMMARY

Highly motivated and innovative researcher with a strong background in deep learning, computer vision, and AI in healthcare. Specializing in medical image analysis, I am committed to developing optimized algorithms and cutting-edge solutions that enhance diagnostic accuracy and clinical decision-making. Leveraging expertise in AI-powered tools, my work focuses on advancing healthcare technologies to improve patient outcomes and streamline medical workflows.

EDUCATION

University of Chinese Academy of Sciences, China **Sept 2021 - Dec 2024**
Ph.D. in Pattern Recognition and Intelligent Systems
Thesis title: An Automated Hybrid Deep Learning Approach for Cardiac Ventricular Segmentation and Pathology Classification

Nanjing University of Aeronautics and Astronautics, China **Sept 2017 - June 2020**
Masters in Information and Communication Engineering
Thesis title: Research on Pedestrian and Face Detection Based on Deep Learning for Autonomous Vehicles

National University of Computer and Emerging Sciences, Pakistan **Sept 2009 - July 2013**
Bachelors in Electrical Engineering
Thesis title: Design and Implementation of RF-based Automatically Driven Electric Generator Using Radio Frequency.

FELLOWSHIPS AND AWARDS

Fellowships

- CSC-Graduate Scholarship Program for International Students. A highly competitive scholarship for international students applying from all around the world. **2017**
- Doctoral Scholarship, UCAS Full. **2021**

Awards

- Shenzhen Universiade International Scholarship (SUISF). **2023**
- Dean's scholarship Award, Shenzhen Institute of Advanced Technology, CAS/SIAT. **2022**
- Shenzhen Universiade International Scholarship (SUISF). **2022**
- Among top 10% student during undergraduate entrance test. **2013**
- Best paper presentation(IEEE). **2019**

EXPERIENCE

Postdoctoral Fellow **March 2026 - Present**
King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia
I am working as a Postdoctoral Fellow. **My key responsibilities were**

- To develop multi-modality for automated cardiac ventricles and pathology classification.
- To evaluated and validated across cardiac datasets to support clinical diagnosis and workflow integration.
- To work closely with cardiologists, radiologists, and researchers to refine model architectures for clinically relevant use cases.

Postdoctoral Fellow **April 2025 - March 2026**
Shenzhen Technology University, Shenzhen, China
I worked as a Postdoctoral Fellow. **My key responsibilities were**

- Developed vision language models (VLLMs) for automated lung cancer detection in chest CT scans.
- Validated across lung cancer datasets for clinical radiology workflows and automated report generation.
- Collaborated with radiologists and oncologists to optimize VLLMs architectures aligned with clinical settings.
- Built NLP pipelines for automated radiology report generation, enhancing workflow efficiency and diagnostic consistency.

Graduate Research Assistant

Sept 2021 - Dec 2024

Shenzhen Institute of Advanced Technology, Shenzhen, China

I worked as an Graduate Research Assistant. **My key responsibilities were**

- Designed and developed an advanced hybrid deep learning models for cardiac ventricle segmentation to improve accuracy and reliability in disease diagnosis.
- Conducted extensive validation and performance benchmarking of AI models across multiple cardiac datasets to ensure robust performance in clinical scenarios.
- Collaborated with interdisciplinary teams to optimize segmentation algorithms, aligning outcomes with clinical diagnostic standards.
- Developed and integrated augmented and mixed reality (AR/MR) solutions for clinical dentistry applications, enhancing procedural accuracy and patient care through immersive visualization techniques.

Assistant Engineer

Sept 2020 - Aug 2021

Songshan Lake Material Laboratory, Dongguan, China

I worked as an Research Assistant. **My key responsibilities were**

- Designed and developed the deep learning algorithm for an autonomous vehicles, such as CNN for object detection and semantic segmentation for comprehensive scene analysis, ensuring optimal system performance and reliability.
- Implemented semantic segmentation and instance segmentation algorithms for comprehensive scene parsing and understanding of road environments.
- Conducted extensive testing and performance validation of AI models in simulated environments and real-world scenarios, focusing on safety and error mitigation.

Laboratory Engineer

Sept 2015 - Aug 2017

University of South Asia, Lahore, Pakistan

I worked as Lab Engineer and taught different courses and labs to undergraduate students i-e Instrumentation and Measurements, Analogue Electronics, Electric Circuits Analysis, Power Electronics, Digital System Design, Digital Logic Design. **My key responsibilities were**

- Conducting and developing engineering labs.
- Taught engineering labs to 200+ undergraduate students and conducted exams.
- Demonstrated practical lab sessions for second and third-year electrical engineering students.
- Designed and co-supervised 10+ undergraduate research projects.

Lecturer

Oct 2013 - Aug 2015

Central College, Multan, Pakistan

I worked as lecturer and taught different courses and labs to B-tech students. **My key responsibilities were**

- Plan, develop, and deliver comprehensive lectures, tutorials, and practical sessions.
- Develop and administer fair and effective evaluation methods including quizzes, assignments, and examinations.
- Demonstrated practical lab sessions.
- Designed and co-supervised research projects.

RESEARCH INTEREST

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- Deep Learning.
 - Medical Image Analysis (MRI, CT, US).
 - Computer Vision.
 - Medical Robotics.

RESEARCH PROJECTS

1. Shenzhen Institute of Advanced Technology (SIAT), Shenzhen **Sep 2021 - Aug 2024**
AI for cardiac disease diagnosis and prognosis. Developed an AI-driven framework for cardiac ventricular segmentation and pathology classification using cine MRI data. The system automatically segmented the right ventricle cavity (RVC), myocardium (MYO), and left ventricle cavity (LVC) using an enhanced U-Net architecture integrated with a Dilated Residual Network (DRN) to reduce bottleneck pixel degradation and improve segmentation performance. It also introduced a semi-supervised learning approach that leveraged time-series motion features for accurate cardiac pathology classification. This integrated framework improved the accuracy and efficiency of cardiac disease diagnosis, supporting prognosis and personalized treatment planning in clinical practice.
2. Shenzhen Institute of Advanced Technology (SIAT), Shenzhen **Sep 2023 - Oct 2024**
Markerless calibration and navigation method for AR-assisted dental treatment. In this project, a novel markerless calibration and navigation method was developed for AR-assisted dental treatment. The project involved designing a feature-based approach that uses RGB-D data to detect anatomical landmarks, specifically teeth, to automatically calibrate HoloLens 2. Integrating a pre-trained deep convolutional neural network (CNN) with a multi-iterative closest point (ICP) algorithm enables precise 3D alignment of virtual and real dental models. The framework provides a streamlined, non-invasive solution to enhance diagnostic precision and efficiency in clinical dental settings, potentially transforming patient care and treatment outcomes in digital dentistry.
3. Nanjing University of Aeronautics and Astronautics (NUAA), Nanjing **Sept 2018 - April 2020**
Research on pedestrian and face detection based on deep learning. This project was my Masters thesis, where I explored deep learning-based detection algorithm. I studied from traditional to advanced detection algorithms. I applied a deep neural network (DNN) based algorithm to build pedestrian and face detection systems.

PUBLICATIONS

1. **Faizan Ahmad**, Jing Xiong, Wu Jie, Xia Jiahong, and Zeyang Xia “Cardiac Dynamic Characteristics Classification on Cine MRI using Semi-supervised Imaging Approach.” *Machine Intelligence Research* (2025). (IF:8.7, JCR:Q1).
<https://link.springer.com/article/10.1007/s11633-024-1534-0>
2. **Faizan Ahmad**, Waheed Ahmad, Jing Xiong, and Zeyang Xia “AR and MR in Dentistry: Developments, Applications, and Prospects.” *IEEE Transactions on Medical Robotics and Bionics* (2024). (IF:3.8, JCR:Q2).
<https://ieeexplore.ieee.org/document/10759859>
3. **Faizan Ahmad**, Wenguo Hou, Jing Xiong, and Zeyang Xia “Fully automated cardiac MRI segmentation using dilated residual network.” *Medical Physics* (2022). (IF:3.2, JCR:Q1).
<https://aapm.onlinelibrary.wiley.com/doi/abs/10.1002/mp.16108>
4. **Faizan Ahmad**, Jing Xiong, and Zeyang Xia “Automatic Feature-based Markerless Calibration and Navigation Method for AR-assisted Dental Treatment.” *IET Cyber-systems and Robotics* (2024). (IF:1.2, JCR:Q4).
<https://ietresearch.onlinelibrary.wiley.com/doi/full/10.1049/csy2.70003>
5. Deng, Hao, **Faizan Ahmad**, Jing Xiong, and Zeyang Xia “A Robot-Object Unified Modeling Method for Deformable Object Manipulation in Constrained Environments.” *IEEE/ASME Transactions on Mechatronics* (2024). (IF:7.3, JCR:Q1).
<https://ieeexplore.ieee.org/document/10472610>
6. Zeyang Xia, **Faizan Ahmad**, Hao Deng, Lin Jiang, Wenlong Qin, Qunfei Zhao, and Jing Xiong “Robotics Application in Dentistry: A Review.” *IEEE Transactions on Medical Robotics and Bionics* (2024). (IF:3.8, JCR:Q2).
<https://ieeexplore.ieee.org/document/10547012>
7. Ijaz Ahmad, Sarra Ayouni, **Faizan Ahmad**, Haiying Li, Sunday Timothy Aboyeji, Hazrat Bilal, Inam Ullah, Mohammed Salem Atoum, Chang Choi, Rab Nawaz, Lei Baiying “An AI-Driven Interpretable Multiview Feature Learning Approach for EEG Based Epileptic Seizure Detection.” *IEEE Journal of Biomedical and Health Informatics* (2025). (IF:6.8, JCR:Q1).
<https://ieeexplore.ieee.org/document/11274402>

8. Asim Zaman, Rashid Khan, Mazen M. Yassin, **Faizan Ahmad**, Jiaxi Lu, Irfan Mehmud, Yu Luo, Yan Kang “MSCS-Net: A Deep Learning Framework for Accurate Segmentation of Low-resolution Stroke Lesions.” *Measurement* (2025). (IF:5.6, JCR:Q1).
<https://www.sciencedirect.com/science/article/abs/pii/S0263224125022845>
9. Asim Zaman, Mazen.M. Yassin, Rashid Khan, **Faizan Ahmad**, Guangtao Huang, Yongkang Shi, Ziran Chen, Yan Kang “VFA-Net3D: A zero-shot vascular flow-guided 3D network for brain vessel segmentation in acute ischemic stroke.” *Computerized Medical Imaging and Graphics* (2026). (IF:4.9, JCR:Q1).
<https://www.sciencedirect.com/science/article/abs/pii/S0895611126000157>
10. Ijaz Ahmad, **Faizan Ahmad**, Sunday Timothy Aboyeji, Yongtao Zhang, Peng Yang, Javed Ali Khan, Rab Nawaz, Baiying Lei “Advanced Multimodal Learning for Seizure Detection and Prediction: Concept, Challenges, and Future Directions.” *arXiv preprint* (2026).
<https://www.arxiv.org/abs/2601.05095>
11. **Faizan Ahmad**, Li.Ning, and Mustafa Tahir, “An Improved D-CNN Based on YOLOv3 for Pedestrian Detection.” *IEEE 4th International Conference on Signal and Image Processing (ICSIP), Wuxi, China, (2019)*.
<https://ieeexplore.ieee.org/document/8868839>
12. Jing Xiong, Qiangyun Li, **Faizan Ahmad**, Changfu Xu, Hao Deng, and Zeyang Xia, “Biplane Transrectal Ultrasound Probe Calibration using Dual-arm Robotic System with Multi-DOF End-effectors.” *IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), Seattle, USA, (2023)*.
<https://ieeexplore.ieee.org/document/10196252>

PATENT

1. Xia Zeyang, **Faizan Ahmad**, Xiong Jing, **A Fully Automatic Cardiac Magnetic Resonance Imaging Segmentation Method Based on Expansive Residual Network**, Shenzhen Institute of Advanced Technology, **Patent Number: ZL202211411228.0**.

BOOK CHAPTERS

1. Huang Bingding, **Faizan Ahmad**, Liang Haomin “Artificial Intelligence in Bussiness and Engineering.”, *AI in Medical Examination*. W. Kohlhammer GmbH, Stuttgart (Germany).

CONFERENCES/WORKSHOPS

Nanjing, China	15 Nov 2018 - 16 Nov 2018
Two-day workshop , GPU-accelerated computing and deep learning	
Wuxi, China	19 Jul 2019 - 21 Jul 2019
Conference on signal and image processing , 4th International IEEE conference, organized by the southeast university wuxi campus.	
Seattle, USA	28 Jun 2023 - 30 Jun 2023
Conference on Advanced Intelligent Mechatronics (AIM) , International IEEE conference, seattle.	

SKILLS AND COMPETENCIES

Simulation and Analysis	Anaconda, Pycharm, Spyder, Visual studio, Unity3D, 3D Slicer, ITK, Blender
Deep learning libraries	Tensflow, Keras, Pytorch, Numpy
Platforms	MATLAB, Latex, C/C++, Python, Origin, SQL

CONTRIBUTION AS REVIEWER

- IEEE Journal of Biomedical and Health Informatics
- IEEE Transactions on Medical Imaging
- IEEE Access
- Computerized Medical Imaging and Graphics
- Knowledge-Based Systems

- Medical Physics
- Nature Scientific Reports

LANGUAGES

English	Fluent
Urdu	Native
Chinese	Basic

REFEREES

Zeyang Xia (Ph.D. advisor)
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Shanghai Jiao Tong University, China
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Abdur Rasool, Ph.D
Department of Information and Computer Sciences
University of Hawaii, USA
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