

EDUCATION

Carnegie Mellon University	<i>Pittsburgh, PA</i>
Master of Science in Computer Vision	Aug 2024
Majmaah University	<i>Riyadh, SA</i>
Bachelor of Computer Science	Jun 2016

WORK EXPERIENCE

XuLab at Carnegie Mellon University	<i>Pittsburgh, PA</i>
Research Assistant	Nov 2022 - Mar 2023

- Actively engaged in pioneering research at XuLab, collaborating closely with esteemed faculty members and postdoctoral researchers.
- Spearheaded a groundbreaking project focused on the development of an innovative approach using contrastive learning for self-supervised object detection, contributing significantly to the field of computer vision research.
- Demonstrated a profound commitment to academic excellence and research rigor in all aspects of the project, from conceptualization to implementation.

National Center for Artificial Intelligence	<i>Riyadh, SA</i>
R&D Research Engineer	April 2021 - July 2022

- Undertook a pivotal role in a research-driven environment, demonstrating a relentless pursuit of knowledge and innovation.
- Achieved remarkable success in academic research endeavors, including the development of a highly accurate brain tumor radiogenomic classifier using 3D MRI data, showcasing a strong commitment to advancing medical technology.
- Strategically addressed challenges related to noisy annotations in mammogram images, elevating the quality of medical data, and contributing substantively to the field of medical imaging research.

National Information Center	<i>Riyadh, SA</i>
Software Developer	April 2019 - April 2021

- Fused the realms of technology and research by playing an instrumental role in the development of cutting-edge software solutions.
- Applied a research-oriented approach to automate and optimize face recognition systems in airport environments, enhancing the efficiency and accuracy of security processes.
- Spearheaded research-driven projects, such as the Saudi National IoT platform, which collected extensive data for academic and research purposes, contributing to the advancement of IoT technologies.

Saudi Telecommunications Company	<i>Riyadh, SA</i>
Software Developer	Jan 2016 - April 2019

- Embarked on an academic journey within the telecommunications industry, employing a research-oriented mindset to resolve complex technical challenges.
- Leveraged research-driven insights to address launch issues in the App Store, optimizing code and ensuring seamless user experiences.
- Contributed to the development of internal iOS applications tailored for research and project management, exemplifying a commitment to excellence in academic and professional endeavors.

RESEARCH PROJECTS

- <i>dynamic Scene 3D Reconstruction.</i>	<i>CMU, Pittsburgh, PA 2023/2024</i>
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- Proposed a revolutionary method for representing dynamic 3D scenes using a single feature plane.
- Designed as a simplified yet robust representation for dynamic 3D scene modeling and re-rendering.
- Envisioned to drastically reduce computational overhead while maintaining high-quality reconstructions.

- **Dense Contrastive Learning for Self-Supervised Object Detection.** CMU, Pittsburgh, PA 2022/2023
 - Executed rigorous empirical evaluations concerning the integration of dense contrastive learning methodologies within the realm of self-supervised object localization and recognition.
 - Leveraged the advanced capabilities of the Detectron2 framework, employing a ResNet-50 architectural foundation as the primary feature extraction mechanism.
 - Anticipate that this research endeavor holds the potential to usher in notable advancements and seminal contributions to contemporary computer vision literature and practices.

- **Detecting and Classifying Lesions in Mammograms using Custom Neural Net.** NCAI, Riyadh, SA 2022/2021
 - Developed an innovative approach to automate the diagnosis, localization, and classification of breast cancer lesions.
 - Leveraged a custom CNN Fusion architecture and intelligently combined multiple views to optimize diagnostic accuracy, even for invisible tumors.
 - The research project represents a substantial advancement in medical imaging technology.

- **Multi-View MRI Approach for Classification of MGMT Methylation using a 3D fusion model.** NCAI, Riyadh, SA 2022/2021
 - Designed and implemented a sophisticated fusion model that integrates data from three distinct MRI views (axial, sagittal, and coronal).
 - Developed a novel method to select optimal images based on tumor area segments and feret diameter criteria.
 - Submitted the research findings to the AI in Medicine journal, representing a significant contribution to the field of medical image analysis.

- **Vehicle Detection and Tracking in Complex Traffic Circumstances.** Independent Project 2021/2020
 - Undertook an independent research project focused on the development of a two-stage model for vehicle detection and tracking in challenging traffic scenarios.
 - Employed YOLOv5 for initial detections and integrated StrongSORT, based on OSNet, to combine motion and appearance information for robust vehicle tracking.
 - The project's findings were submitted to the Computer and Geoscience journal, showcasing the potential to enhance transportation safety.

SKILLS

Programming language: Python, C#, Swift, JavaScript, C++

Framework: PyTorch, TensorFlow.

Tools / Libraries: Pydicom, PyTorch3D, Torchio, OpenCV, 3D slicer.

Certificates: Summer program - Machine Learning

University of Oxford, Aug 2022

Coursework: Deep reinforcement learning, Visual learning and recognition, Learning from 3D, geometry-based methods in vision.

AWARDS

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| • 3rd winner in computer vision competition | AI Center | Riyadh, SA 2021 |
| • 3rd winner in creative Hackathon track | The Ministry of Interior | Riyadh, SA 2020 |
| • 1st winner in medical Hackathon track | MIT Hacking Medicine | Riyadh, SA 2018 |