Asrar Alruwayqi
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EDUCATION

Carnegie Mellon University *Pittsburgh, PA*
Master of Science in Computer Vision *Dec 2023*
Majmaah University *Riyadh, SA*
Bachelor of Computer Science *Jun 2016*

WORK EXPERIENCE

XuLab at Carnegie Mellon University *Pittsburgh, PA*
Research Assistant *Nov 2022 - Present*
- Collaborate with faculty member and postdoc. To develop a new approach through contrastive learning for self-supervised object detection.

National Center for Artificial Intelligence *Riyadh, SA*
R&D Research Engineer *April 2021 - July 2022*
- Achieved 90% accuracy in brain tumor radiogenomic classifier via 3D MRI.
- Addressed noisy annotations in mammogram images and improved them by 10%.
- Achieve an accurate model trained on visual data with an unbalanced distribution.

National Information Center *Riyadh, SA*
Software Developer *April 2019 - April 2021*
- Automated face recognition system in airports and improved response time.
- Collaborated with a team of engineers to develop the Saudi National IoT platform to collect above 1000 data points per second from sensors.
- Designed a proof of concept for smart cities. e.g. Auto fire notification system in homes to connect directly with the nearest fire station.

Saudi Telecommunications Company *Riyadh, SA*
Software Developer *Jan 2016 - April 2019*
- Solved launch issues in the App store with a team of engineers and tested code problems.
- Built IOS applications for internal services that help management to organize projects and communication.
- Ensured quality and performance of the application to specifications.

RESEARCH PROJECTS

- Scene 3D Reconstruction via Diffusion Distillation. *CMU, Pittsburgh, PA 2022/2023*
Working on distilling a 3D consistent scene representation from a view-conditioned latent diffusion model and recovering a plausible 3D representation of muti-objects whose renderings are both accurate and realistic. The goal is to publish this work in CVPR.

- Dense Contrastive Learning for Self-Supervised Object Detection. *CMU, Pittsburgh, PA 2022/2023*
Worked on experiments detectron2 with dense contrastive learning approach with backbone resnet50. The goal is to submit this work in ICCV23.

- Detecting and Classifying Lesions in Mammograms using Custom Resnet. *NCAI, Riyadh, SA 2022/2021*
Develop a new approach for automating diagnosis, localization, and classification of breast cancer lesions based on the CNN architecture by combining multiple custom Resnet and input multi-views in an optimal way among a number of possible choices, also dealing with invisible tumor..

- Multi-View MRI Approach for Classification of MGMT Methylation using a 3D fusion model. *NCAI, Riyadh, SA 2022/2021*
Designed a fusion model that uses 3 images of all views (axial, sagittal, and coronal). first, extract 3 slices of each view from 3D MRI volume by finding tumor area segments and choosing images whose segment has the largest feret diameter. then feed each view to a MONAI Densenet121. Submitted in AI in medicine journal.

- Vehicle Detection and Tracking in Complex Traffic Circumstances. *Independent Project 2021/2020*
Build a two-stage model that adjusts to different scenarios. The detections generated by YOLOv5. Then passed to StrongSORT to combine motion and appearance information based on OSNet in order to track vehicles. Submitted in computer and geoscience journal.

SKILLS

Programming language: Python, C#, Swift, JavaScript, familiar with C++
Framework: PyTorch,TensorFlow,.NET, LaTeX
Tools / Libraries: Pydicom, PyTorch3D, Torchio, OpenCV, 3D slicer, Git
Certificates: Summer program - Machine Learning *University of Oxford, Aug 2022*
Coursework: Deep reinforcement learning, Visual learning and recognition, Learning from 3D

AWARDS

• 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*