ZAHRA ANVARI

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RESEARCH INTERESTS

I have broad research interests in Machine Learning, Deep Learning and Computer Vision. Specifically, I'm interested in object detection/classification and tracking, image and video restoration/enhancement, face recognition and clustering, and GANs.

EDUCATION

University of Texas at Arlington — Arlington, TX
Ph.D. in Computer Science, GPA: 4.0/4.0 — *Aug. 2015 - April 2021*
Advisor: Vassilis Athitsos

Urmia University — Urmia, IR
M.S. in Computer Networks Engineering, GPA: 3.8/4.0 — *2010-2013*

Shahid Rajaee University — Tehran, IR
B.S. in Information Technology Engineering — *2004-2008*

EXPERIENCE

University of Texas at Arlington — Arlington, TX
Research Assistant — *August 2016 - Present*

- Developed a GAN-based image-to-image translation network with U-Net generators for *unpaired image de-hazing*.
- Introduced a realistic haze dataset, Sun-Haze, and benchmarked and evaluated the de-hazing methods over this dataset.
- Worked on face detection and clustering and developed an automatic face dataset creation pipeline.

Wave Computing Inc. — Campbell, CA
Deep Learning Intern — *May 2019 - November 2019*

- Implemented a pipeline for enhanced emotion and face detection for retail store analysis.
- Our pipeline improved the accuracy of emotion detection by **16%**.
- Benchmarked the performance of different super-resolution methods, e.g., SRGAN, ESRGAN, for retail store analysis.
- Benchmarked the performance of different face detection methods: OpenCV Haar Cascades, Dlib HOG, Dlib CNN, MTCNN, and Mobilenet-SSD.
- Adopted reconstruction techniques like *deblurring*, *denoising*, *contrast enhancement*, and *deblocking*.
- Built a real-time visual sentiment classifier based on a customized miniXception network.
- Utilized different object tracking methods such as YOLOv3 with deep SORT, and ROLO (Recurrent YOLO) to track customers in the retail store application.

ACECR, Sharif University Branch — Tehran, IR
Software Engineer — *June 2013 - June. 2015*

- Designed and implemented several vehicular applications such as Centralized Traffic Data Collection, Work-Zone Warning, and Zone-Based Traffic Data Collection.

PUBLICATIONS

- **Enhanced CycleGAN Dehazing Network**, **Zahra Anvari** and Vassilis Athitsos, *In proceedings of 16th International Conference on Computer Vision Theory and Applications, Vienna, Austria, 2021.*
- **Evaluating Single Image Dehazing Methods Under Realistic Sunlight Haze**, **Zahra Anvari** and Vassilis Athitsos, *In proceedings of 15th International Symposium on Visual Computing, San Diego, CA, 2020.*
- **A Pipeline for Automated Face Dataset Creation from Unlabeled Images**, **Zahra Anvari** and Vassilis Athitsos, *In proceedings of the 12th ACM International Conference on PErvasive Technologies Related to Assistive Environments, ACM, 2019.*

AWARDS AND SERVICES

Paper Reviewer: IEEE Winter Conf. on Applications of Computer Vision (WACV), 2020
Kelcy Warren Graduate Fellowship for Engineering, *University of Texas Arlington*, 2020
Third Place in *28th Khwarizmi International Award*, Design and Implementation of Connected Vehicle Systems, 2016.

ACADEMIC PROJECTS

- **Deep Learning:** Implemented YOLO for car detection in autonomous driving in Keras.
- **Deep Learning:** Implemented COVID-19 detection on Chest X-Ray dataset using ResNet18 in PyTorch.
- **Deep Learning:** Implemented language translation models using RNN (for word translation) and LSTM (for text translation) in Tensorflow/Keras.
- **Deep Learning:** Implemented Mask R-CNN for instance segmentation.
- **Neural Networks:** Built a model for real-time face recognition using FaceNet.
- **Neural Networks:** Implemented a deep CNN for face recognition in Tensorflow, called SphereFace, from scratch.
- **Machine Learning:** Implemented a Naive Bayes classifier to classify news articles.
- **Machine Learning:** Implemented an SVM classifier for face recognition problem.
- **Active Learning:** Explored and implemented different Active Learning strategies.
- **Model Compression and Optimization:** Optimized ResNet50 using quantization and achieved 2X better inference time, with only 0.3% drop in accuracy.

CERTIFICATES

Deep Learning Specialization 2018
Coursera, (Taught by Andrew Ng)

The Ultimate Hands-on Hadoop 2020
Udemy

Spark/PySpark 2020
Udacity

TECHNICAL SKILLS

Programming Languages	Python, C/C++, MATLAB
Machine/Deep Learning Tools	Pytorch, Tensorflow, Keras, scikit-learn, TensorRT, ONNX, Netron
Computer Vision Tools	OpenCV, DLib, FFmpeg
Big Data and data management Tools	Hadoop, Saprk, MySQL, MonogoDB
Libraries	Numpy, Pandas, SciPy, Matplotlib, NLTK
OS	Linux (Ubuntu), Windows
Misc	Git, Docker, AWS, Jupiter Notebook