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SeyedMohammadreza Mousavi

Education

- **Sadjad University,** Mashhad Iran
  M.Sc. in Artificial Intelligence, 2017-2020
  Supervisor: **Dr. Amir Bavafa Toosi**
  Thesis: Development of English handwritten recognition using Deep Neural Network
  Thesis grade: 18.5/20; Ranked in top 5% of class
- **Azad University of Mashhad,** Mashhad, Iran
  B.Sc in Computer Engineering - Hardware Engineering, 2012-2016
  Supervisor: **Dr. Farzaneh Kimiaei**
  Thesis: Developing AVR programming for automation
  Thesis grade: 20/20; Ranked first in class

Publications

Journal Papers:

1. **Mousavi, S. M.**, & Toosi, A. B. (2024). Recognition of characters using a gated convolutional and recurrent neural network architecture. Journal of Soft Computing and Information Technology, 13(3), 31–45.
   Received: 05/08/2024; Revised: 12/12/2024; Accepted: 12/23/2024.
   Available at: http://www.jscit.nit.ac.ir/article_212386.html?lang=en
2. **Mousavi, S. M.**, & Toosi, A. B. (2025). GCRCR: Gated Convolutional and Recurrent Character Recognition.
   Manuscript submitted for publication in International Journal on Document Analysis and Recognition (IJDAR).
3. Hossaini, S. B., **Mousavi, S. M.**, & Toosi, A. B. **(**Year). A hybrid method for generating markers to improve the image segmentation of the watershed algorithm.
   Manuscript submitted for publication in Tabriz Journal of Electrical Engineering (TJEE).

Conference Paper:

1. **Mousavi, S. M.**, Rahimian Zariv, A., & Hamidzadeh, J. (Year). Lithium Battery SOH Estimation: A Novel Octave and LSTM Hybrid Neural Network Approach.
   Paper accepted in the 12th Iranian Conference on Renewable Energies and Distributed Generation (not yet published).
   Conference website: https://icredg2025.qut.ac.ir/

Note: Abstracts will be provided upon request.

Research Interest

Computer Vision Machine Learning & Deep Learning Reinforcement Learning
Natural Language Processing Robotics & Navigation

Teaching Experience

Python programming language

- Teaching Python programming language to undergraduates at Industrial Sadjad University since Jan 2024.

Internet of Things & Hardware Programming

- Taught IoT with Arduino/Raspberry Pi, covering sensor integration and embedded system design.

Honors and Awards

- **M.Sc. Admission with distinction (Spring 2019)**
  Admitted to the Master's program in AI at Industrial Sadjad University as a top student.
- **Exclusive Teaching Invitation**
  Selected as an instructor at Industrial Sadjad University while pursuing M.Sc., chosen among peers.
- **Outstanding Faculty Recognition (2024)**
  Recognized by Sadjad Industrial University for excellence in research and teaching:
  https://www.linkedin.com/in/seyed-mohammadreza-mousavi/overlay/1742026180876/single-media-viewer/?profileId=ACoAACxGXmkBPzeK1VQ_zy6_sEAKJVPpiqAoxJ0

Skills

Programming languages
Python, Mathlab, C, C++, PHP, R, Arduino, Flutter

Technical tools
OpenMMLab, PyTorch, Tensorflow, Keras, ROS, Scikit Learn, Matplotlib, Pandas, SciPy, Numpy

Other skills
Familiar with: Linux (Lpic 1&2), Version Control (Git&Github), Docker

Working Experience

Software-Motion, China, Suzhou - *Calibration algorithm Engineer (remote)*

Jul 2024 – Now

Supervisor: 叶辰怡 (Tiffany)

- Built ***ROS/SLAM-based AGV*** software with sensor fusion and navigation.
- Enabled reliable localization in industrial and outdoor settings.

Perception model team head, China, Suzhou

Oct 2023 – Jun 2024

- Optimized traffic light detection using ***anchor-based/anchor-free*** models (RetinaNet, YOLOX).
- Built ONNX conversion pipelines for cross-platform model deployment.

VERA startup, Mashhad, Iran - *AI developer*

Aug 2023 - Oct 2023

- Built and deployed an ***NLP-based conversational AI*** with persistent user context.
- Led development of a TTS model to improve audio interactions.

FAV Information Technology, Mashhad, Iran - *R & D Engineer*

Aug 2021 - 2023

- Built ML models in Python to forecast market trends and segment customers.
- Optimized inventory levels using demand pattern analysis to reduce costs.

Samatoos, Mashhad, Iran - *Network and Computer SysAdmin*

May 2016 - 2021

- Managed VMs with VMware vSphere and Hyper-V; implemented backup and recovery solutions.
- Deployed Zabbix for proactive network monitoring and issue resolution.

Test Score

- IELTS overall: 6.5 (L=6, R=6.5, W=6, S=6.5)

Projects

Retinal Blood Vessel Segmentation

Jul 2023

Built a RetinaNet blood vessel segmentation model in TensorFlow with pre-trained encoder: https://github.com/seyed-mohammadreza-mousavi/Retinal-Vessel-Segmentation_A-Computer-Vision-Technique

Object Detection with YOLOv3

May 2023

Implemented a real-time Object Detection system with YOLOv3, fine-tuning parameters and evaluating performance using mAP.

Overtime Work Forecasting with Neural Prophet

Mar 2022

Developed a customized Neural Prophet forecasting system to predict staff overtime, analyzing historical data for key patterns.

Handling Imbalanced Datasets with Chaotic Functions and Evolutionary algorithms

Jan 2022

Designed a chaotic-evolutionary method to balance datasets with synthetic samples.

- Source code available upon request.

AI passed courses

Reinforcement Learning, Evolutionary Algorithms, Machine Vision, Pattern Recognition, Machine Learning, Artificial Intelligence, Fuzzy system.

Online courses and degrees

Introduction to Self-Driving Cars (Coursera)

Supervised Machine Learning: Regression and Classification (Coursera)

Deep Learning: Image Recognition (LinkedIn)

ROS for Beginners: Basics, Motion, and OpenCV (Udemy)

Advance Your Skills in Deep Learning and Neural Networks (LinkedIn)

Machine Learning with Python: Foundations (LinkedIn)

References

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