Narges Norouzi
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Data Scientist/Computer Vision Engineer & Researcher

ABOUT

Data Scientist with 5+ years of experience in researching and building applied deep learning , computer vision, real-time sensor data analysis and big data applications, distributed focused web crawlers and overcoming high load real-time stream processing issues in different businesses. Experienced at designing, developing and deploying machine learning and deep learning models, as well as proficient in predictive modeling, data processing and data mining algorithms. Finally, I am passionate about cutting-edge technology, researching and solving real-world problems with previous experience in this field.

RESEARCH INTERESTS

- Self-Supervised and Zero-Shot Learning for Computer Vision
- Real-Time Sensor data Analytics (Distributed Stream Processing Systems)
- Transformer for Semantic Segmentation
- Content-based Image Retrieval Systems
- Deep Generative Adversarial Networks (GANs)
- Deep Learning (Deep Image Representation)
- Focused Web Crawler Engines

EDUCATION

M.Sc. in Computer Engineering (Artificial Intelligence)
Department of Computer Engineering,Alzahra University 01/09/2009-12/03/2012
Thesis: Detection of changes in Longitudinal MRI images
Supervisors: Dr. Reza Azmi , Dr. Robab Anbiaee
gpa : 19.04 (A+)

B.Sc. in Computer Engineering (Software Engineering)
Abhar Payamnoor University , Zanjan,Iran 01/09/2004-20/07/2008
Thesis:Analysis, Design and Implementation of Student Information Management System
Supervisor: Dr. Ali Jamaat
gpa: 17.03

RESEARCH AND WORK EXPERIENCES

Lead Researcher and Developer at Artificial Intelligence Lab.:
(ToobaTech Co, 15/10/2015 Until now)

Project1: SnapMode (Iranian Distributed Image Retrieval System)
See Project: https://www.snapmode.ir

Responsibilities:

- Designed and developed a Low Latency Scalable Image Retrieval Engine to extract image and video data from E-commerce websites using Apache Storm, Solr, Kafka and Milvus. (+10M Product Pages)
- Enhanced the content-based image retrieval accuracy using a Triplet Generative Adversarial Networks (CBIR-GAN) to feature representation.(82% accuracy on the in-shop products)
- Fine-tuned the Detectron2 for fashion object detection.(89% accuracy on the in-shop products)
- Fine-tuned the transformer-based Clip platform for Persian data.

- Optimized the search performance of vector queries using clustered Milvus.

Project2: Water Quality(Water Sensor Data Analysis)

Responsibilities:

- Designed and developed a real-time big data architecture for water sensor data ingestion, fusion and analysis using transformer-based deep learning algorithms

Project3: Enamad (E-commerce Websites Monitoring System)

Responsibilities:

- Built a fake logo detection system that leveraged transfer learning using pre-trained Resnet-18 model to successfully identify real Enamad logo in Iranian E-commerce websites.(92% accuracy)

Project4: BigMehr(AI-Enabled Marketing Platform) TehranInternet

Responsibilities:

- Designed and Developed an AI-Enabled marketing system based on Hortonworks big data platform to process and analyze the customer data of a USSD application (#780) with +3M active users.
- Developed a customer churn prediction model using LSTM networks that improved monthly retention by offering discount and running relevant marketing Campaign.
- Improved marketing team process, resulting in a 30% decrease in time needed to infer insights from customer data used to develop marketing strategies.
- Used Prophet algorithm to forecast daily company sales with a 85% accuracy rate.

Project5: Sepahtan(Driver Behavior Monitoring System)

Responsibilities:

- Developed a driver behavior monitoring system using Hortonworks big data platform with +3k driver.
- Implemented driver behavior clustering model using Apache Spark MLlib kmeans algorithm.(Silhouette with squared euclidean distance = 0.75)

Project6: HodHod (University News Analysis and Tracking System)

Responsibilities:

- Designed and developed an news analysis and monitoring system that leveraged from BERT model for sentiment analysis and improved negative comments detection with 82% accuracy rate.(Focusing on university news)

Researcher and Programmer at Saberan Co.(01/04/2012 - 15/04/2016)

Project1: Qubes OS development

Responsibilities:

- Kernel minimization and custom configuration
- Developed multi-user capability for Qubes OS at Dom0 level
- Developed Network-Isolation capability for Qubes OS
- Desktop Environment / Window Manager/ File Manager customizing (xfce, kde, cinnamon, nautilus)
- Developed a kernel module for extracting and encrypting hardware information at kernel level
- Developed a hardware profile module at security level 1 based on root pass
- Developed a localized hardware profile module at security level 2, based on root pass + HSM(Token)
- Developed a centralized hardware profile module at security level 3, based on root pass + HSM + Network

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TECHNICAL SKILLS

- Programming Languages and Frameworks : Python, Shell script, and Familiar with R
- Deep Learning Platforms and Libraries: Mxnet, Pytorch, Tensorflow, Keras
- Python Libraries (Data Science) : NumPy, Pandas, Matplotlib, Hyperplot, SciKit-Learn, Streamparse, Pysolr, Beautiful Soup, Request, CV2, Pillow
- Automated Machine Learning Platform and Libraries :Model Search, AutoKeras, TPOT, Auto-sklearn, AutoGluon
- Machine Learning Deployment Platforms: FastApi, BENTOML, Cortex ,KFserving, TensorFlow Serving(TFX), Apache MXNet Model Server (MMS)
- Big Data Platforms: Hortonworks Data Platform (HDP)
- Big Data Analytic Platforms: Familiar with H2O and Spark
- Distributed Stream Processing Platforms: Apache Storm and Familiar with Apache Flink, Apache Beam, Apache SAMOA
- Distributed Message Broker Platforms: Apache Kafka
- Search Engines: Apache Solr, Elasticsearch, Milvus
- Databases: Hbase, Hive, PostgreSQL
- Workflow Scheduler Platforms: Apache Oozie, Apache Airflow
- Visualization Platform: Kibana, PowerBI
- Containers: Familiar with Docker
- Shared Storage Platforms: Familiar with GlusterFs
- Platforms: Linux(Fedora, Centos, Ubuntu), Windows
- Development Environment: Visual Studio Code, pyCharm and Familiar with Rstudio
- Virtualization : VMware , ESXi, KVM, VirtualBox and XEN VMM
- Code sharing Tools: Git

- Typesetting: LATEX, Vim, Gedit and Microsoft Word
- Analysis and Design: Microsoft Visio

JOURNAL PUBLICATIONS

- **N.Norouzi, R.Azmi, "CBIR-GAN: A Triplet Generative Adversarial Network for Content-Based Image Retrieval" Submitted to Expert Systems with Applications Journal (2021). Draft Available**

- **N. Norouzi, R. Azmi ,"SnapMode: An Intelligent and Distributed LargeScale Fashion Image Retrieval Platform Based On BigData and Deep Generative Adversarial Network Technologies." Submitted to International Journal of Information Management (2021). Draft Available**
- N. Norouzi, R. Azmi, N. Nooshiri, R. Anbiaee ,"A New Automatic Change Detection Framework Based on Region Growing and Waited Local Mutual Information: Analysis of Breast Tumor Response to Chemotherapy in serial MR Images", arxiv:2020:2110.10242 Available at arxiv (2020).
- R. Azmi, N. Norouzi, " A New Markov Random Field Segmentation Method for Breast Lesion Segmentation in MR Images ", Journal of Medical Signalsand Sensors (JMSS) pp. 156-164, Vol. 1(3), (2011).
- R. Azmi, N. Norouzi, R. Anbiaee, L. Salehi and A. Amirzadi, "IMPST: A New Interactive Self-Training Approach to Segmentation Suspicious Lesions in Breast MRI", Journal of Medical Signals and Sensors (JMSS), vol. 1(2), pp. 138-148, (2011)
- R. Azmi, B. Pishgoo, N. Norouzi, S. Yeganeh, "Ensemble Semi-Supervised Framework for Brain MRIs Tissue Segmentation", Journal of Medical Signals and Sensors (JMSS), Vol. 3(2), pp. 92-103, (2013)

CONFERENCE PUBLICATIONS

- R. Azmi, N. Norouzi ,R. Anbiaee, "Detection of changes using Local Mutual Information Theory ", 17th Iranian Conference of Computer Society, Tehran, Iran), 157-162, (2012).
- R. Azmi, B. Pishgoo, N. Norouzi, "Ensemble Framework for Semi-Supervised Learning", 3rd World Conference on Information Technology, Turkey, (2012).
- M. salehi, N. Norouzi, R. Azmi , An Unsupervised method for change detection in Breast MR images based on SOFM , 3th International Conference on Contemporary Issues in Computer and Information Sciences, 473-479. (2012).
- N. Norouzi, N. Riahi Vowels Recognition using Semi-Supervised Mco-Training Algorithm 16th Iranian Conference of Computer Society, Tehran, Iran, pp.403-408, (2011).
- R. Azmi, B. Pishgoo , N. Norouzi , M. kohzadi , F. Baesi, "A hybrid GA and SA algorithms for feature selection in recognition of hand-printed Farsi characters", 2010 IEEE International Conference on Intelligent Computing and Intelligent Systems (ICIS 2010), Xiamen,China , October (2010).

HONORS AND AWARDS

- Superior Researcher Student at The Twelfth Week of Research and Technology, Alzahra Unversity 2011
- Ranked 2nd Among the Students of Computer Engineering Department at Alzahra University With gpa: 19.04 2011

RESEARCH EXPERIENCES

- Head of Medical Image Processing Lab(MIPL),Computer Engineering Department, Alzahra University 2010-2012
- Research Assistant at MIPL and OSSL Labs,,Computer Engineering Department, Alzahra University December 2015 - Peresent

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TEACHING EXPERIENCES

Teaching Assistant:

- Artificial Intelligence Dr. Reza Azmi Winter 2010

Teacher:

- Digital Logic and Electrical Circuits lab, Alzahra University Spring 2011
- Operating System Lab, Pascal Instructor,Pyamnoor University Winter 2011
- Image Processing, Islamic Azad University of Pardis Spring 2013

LANGUAGES

Persian: Native
Turkish: Fluent
English: Good

REFERENCES

Available upon request.