Behrad Sadeghi

Computer Engeneering Undergarduate Student

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EDUCATION

University of Guilan **Sep 2019 – Feb 2024**

B.Sc. in Computer Engineering *Rasht, Iran*

- CGPA: 3.69/4.0 (16.29/20)
- GPA of last year: 4.0/4.0 (18.88/20)

RESEARCH EXPERIENCE

Nasal Fracture Diagnosis with Transfer Learning **In Progress (Feb 2024 - Present)**

- **Behrad Sadeghi, Dr. Seyed Abolghasem Mirroshandel**
- Under the supervision of Dr. Mirroshandel, I am spearheading a research project aimed at diagnosing nasal fractures utilizing state-of-the-art models, including Vision Transformer (ViT), Caformer, and EfficientNet. This study is particularly novel and challenging due to the use of an original dataset that has not been previously explored in the existing literature. Despite these complexities, our fine-tuned models have already achieved an accuracy rate exceeding 85%. We are currently conducting extensive evaluations by applying various transformer architectures and cutting-edge models to our dataset to rigorously assess and document their performance metrics.

RESEARCH INTEREST

- Machine Learning
- Deep Learning
- Computer Vision
- Medical Imaging
- Bioinformatics
- Large Language Models(LLMs)
- Trustworthy AI
- Human-Computer Interaction (HCI)

SELECTED PROJECTS

Pothole Segmentation | **Pytorch/Yolo**

- This project develops an advanced deep learning model, **YOLOv9**, for **detecting** and **segmenting** potholes in **images** and **video streams**. Using a custom dataset, the model was fine-tuned with optimized hyperparameters, achieving a **mAP50** of **0.807** and a **Mask mAP50** of **0.825**, highlighting its effectiveness.

Amazon Reviews | **Keras/LLM**

- A machine learning model was trained on Amazon Reviews for **sentiment analysis**, with preprocessing steps including **tokenization**, stopword removal, **lemmatization**, and **stemming**. Logistic Regression was used, and the repository includes code for additional models like **BERT** and Simple Neural Networks.

AlzMRI-Net | **Pytorch**

- The AlzMRI-Net project develops a deep learning model to classify MRI scans into **four Alzheimer's disease stages** using a fine-tuned **EfficientNet-V2-L** model with **transfer learning** in PyTorch. Techniques like mixed precision training and gradient accumulation improve performance. The model achieves a **99.19%** test accuracy, underscoring its effectiveness in **Alzheimer's disease classification**.

Paper Summarizer | **Pytorch/LLM**

- Automated tool for fetching and **summarizing** the latest research papers from **PubMed** and **arXiv** using the **BART** large language model. Users can easily select papers and view detailed summaries, making it easier to stay updated with current research.

WORK EXPERIENCE (Unpaid)

Machine Learning Engineer Intern **Feb 2023 – August 2023**

Infinite Modern Technology

- Gained proficiency in data processing techniques and tools such as Pandas, Matplotlib, Seaborn, and NumPy. Acquired knowledge in machine learning concepts and algorithms, both supervised and unsupervised. Completed several projects including:
- Predicting-Loan-Acceptance —
- Predictive-Modeling-of-Car-Prices —

Research Assistant **Nov 2023 – Present**

University of Guilan

- I have worked on various datasets and papers under the supervision of Dr. Mirrooshandel.
- Currently, I am focused on a paper titled **Nasal Fracture Diagnosis with Transfer Learning**, which involves a dataset collected by Dr. Mirrooshandel himself that has not been previously explored in this field.

HONORS AND AWARDS

National undergraduate full scholarships, University of Guilan **2019 – 2023**
***Top 1%** of **164,000** participants in the Iranian University Entrance Exam*

Announced as the Outstanding Student, University of Guilan **2019 – 2024**
*Achieving a **4.0 GPA** in 4 out of 9 semesters.*

Member of the Scientific Association of Computer Engineering in University of Guilan **2023 – 2024**
This Association consists of 6 members selected from all the students of the Computer Department

RELEVANT COURSEWORKS

- **Intro to Machine Learning-Kaggle**
- **Pandas-Kaggle**
- **Natural language processing:** 20/20
- **Engineering Probability and statics:** 19.75/20
- **Advance Programming:** 20/20
- **Algorithm Design:** 19.12/20

TEACHING ASSISTANT EXPERIENCE

Artificial Intelligence | *University of Guilan* **Fall 2022**

- **Instructor**: Dr. Y. Boreshban
- As a Teaching Assistant, I was responsible for creating assignments, guiding students through projects, and producing informative videos about neural networks, all to foster optimal learning experiences and facilitate students' comprehension.

Algorithm Design | *University of Guilan* **Spring 2023**

- **Instructor**: Dr. A. Khozaei
- I designed and assessed assignments for students so they were able to implement complex algorithms.

Software Testing | *University of Guilan* **Spring 2023**

- **Instructor**: Dr. F. Feyzi
- My only responsibility was to assess the students' assignments.

SKILLS

Programming Languages: Python, SQL, Java, C++,HTML
ML Frameworks: PyTorch, TensorFlow, Huggingface, LangChain Keras, Scikit-learn
Data Science Tools: Power BI, Numpy, Pandas, Matplotlib, Seaborn, Scipy, Excel
Extra Tools and Technologies: Linux, Git, Docker, Latex
Operating Systems : Linux, MacOS, Windows
Technical Expertise : Machine Learning, Deep Learning, LLMs, Computer Vision, Trustworthy AI, Medical imaging

LANGUAGES

English: Overall band score **7.0** in the IELTS test : Reading(8.5), Listening (7.5), Speaking(6.5), Writing (6)
Persian: Native Language

REFERENCES

Dr. Seyed Abolghasem Mirroshandel **Rasht,Iran**

- Associate Professor of Computer Engineering at University of Guilan
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- Google scholar

Dr. Farid Feyzi **Rasht,Iran**

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