MILAD SOLEYMANI

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Personal Website - GitHub - Linkedin - Google Scholar

SUMMARY

Dynamic and innovative Electrical Engineering graduate with a strong specialization in developing neural architectures and optimizing training algorithms. Proficient in Python and a variety of AI/ML frameworks, with extensive experience in designing predictive systems and generative models. Proven track record in applying AI to medical fields, including EEG signal analysis and voice recognition for chronic heart failure phenotyping. Demonstrated ability to manage complex research projects, deliver high-quality results, and enhance diagnostic accuracy through AI applications.

EDUCATION

- **M.Sc. Artificial Intelligence and Robotics** **Sep 2024 – Present**
  Islamic Azad University, Tehran, Iran
- **B.Sc. Electrical Engineering** **Sep 2018 - Sep 2023**
  K. N. Toosi University of Technology, Tehran, Iran
  - ◊ **GPA: 3.14/4**
  - ◊ **Thesis Project:** Developing a Label Tracking Tool for Semantic Segmentation of Videos and Images **Link**: **github link**
    Advisor: Dr. Behrooz Nasihatkon
- **Highschool Diploma, Physics and Mathematics** **Sep 2015 - Jun 2018**
  - ◊ **GPA: 4/4**

RESEARCH EXPERIENCE

- **Exploring Classification and Feature Extraction Techniques in Electroencephalography (EEG)**
  Advisor: Dr. A. Partovi, Dr. F. Goodarzy **Mar 2020 - Present**
  - ◊ Conducted an in-depth literature review on existing EEG classification and feature extraction methods to identify state-of-the-art techniques.
  - ◊ Applied advanced signal processing techniques to extract meaningful patterns from raw EEG data.
  - ◊ Conducted cross-validation and hyperparameter tuning to ensure robustness and generalizability of the classification models.
  - ◊ Developed and maintained documentation of methods, algorithms, and results to facilitate knowledge sharing and reproducibility of the research.
  - ◊ Requirements: Python, PyTorch, MNE-Python, scikit-learn, SciPy, NumPy, Pandas, Git, Weights and Biases, and GitHub.

- **Developing a Pipeline for Image Generative AI (Stable-Diffusion and ControlNet)**
  RUTILEA, Japan **Apr 2023 - Nov 2023**
  - ◊ Collaborated with cross-functional teams to understand project requirements and integrate feedback into the development process.

◊ Designed and developed a robust pipeline for efficient and scalable image generation, incorporating advanced AI techniques.

◊ Conducted extensive experimentation and hyperparameter tuning to achieve optimal model performance and output quality.

◊ Documented the development process and created user guides to facilitate smooth deployment and usage by end-users.

◊ Requirements: Python, PyTorch, OpenCV, NumPy, Pandas, Docker, Git, AWS/Azure, Weights and Biases, and GitHub.

- **Working on a groundbreaking research initiative focused on the use of voice recognition for chronic heart failure (CHF) phenotyping.**
  Advisor: Dr. A. Partovi **Aug 2021 - May 2022**

  ◊ Conducted a comprehensive literature review on voice recognition technologies and their potential applications in medical diagnostics, specifically for chronic heart failure (CHF).

  ◊ Collaborated with cardiologists and healthcare professionals to identify key vocal features indicative of CHF and validate findings.

  ◊ Developed a user-friendly interface for healthcare providers to utilize the voice recognition tool in clinical settings.

  ◊ Requirements: Python, PyTorch, Librosa, scikit-learn, Transformers, NumPy, Pandas, Docker, Git, AWS/Azure, AWS S3, Weights and Biases, and GitHub.

PUBLICATIONS

- Mohammadi A. ,**Soleymani M.**, Ziaee S., Partovi A. **POC-CSP: A novel Parameterised and Orthogonally-Constrained Neural Network layer for learning Common Spatial Patterns (CSP) in EEG signals** **Nov 2022 - Sep 2023**
  Link: **Manuscript PDF**

- **Soleymani M**, Ziaee S, Mohammadi A. , Partovi A **A Self-supervised Task-agnostic Embedding for EEG Signals** **Oct 2021 - Aug 2022**
  Link: **Manuscript PDF**

- **A Deep Learning Algorithm for Classifying Grasp Motions using Multi-session EEG Recordings** **Mar 2020 - Jan 2021**
  Link: **10.1109/BCI51272.2021.9385295**
  Advisor: Dr. F. Goodarzy, Dr. A. Partovi

WORK EXPERIENCE

- **Computer Vision Specialist** **Nov 2023 - Feb 2024**
  ATHLX, Canada

  ◊ At ATHLX, I specialize in applying computer vision techniques to analyze and classify human body movements. My primary focus has been developing robust machine learning models to interpret motion patterns and translating these models into Swift for seamless integration into mobile applications. This work supports real-time performance monitoring and enhances user experience, showcasing my expertise in bridging advanced AI solutions with practical, application-ready implementations.

- **Data Scientist - Computer Vision** **Aug 2022 - Nov 2023**
  RUTILEA, Japan

  ◊ During my tenure at Rutelea, I developed advanced generative models for both images and text. These models are capable of producing high-quality industrial-specific images and providing specialized descriptions for various user queries. Additionally, I worked on AI-driven projects, including compressor control systems and robotic solutions for object transfer using visual inputs to identify and manipulate objects on conveyor belts. These projects demonstrated my ability to apply artificial intelligence to enhance operational efficiency and drive innovation within the company.

- **Data Scientist** **Aug 2021 - Jul 2022**
  KeyLead Health, Australia

  ◊ As a Data Scientist at KeyLead Health, I developed AI-based systems for processing biological signals, including EEG, and worked on audio data analysis to detect chronic heart failure. I optimized machine learning algorithms to enhance diagnostic accuracy and patient monitoring. Additionally, I analyzed Australian pharmaceutical data to perform predictive analytics, contributing to improved healthcare outcomes. My work involved leveraging AI and data science methodologies to solve complex problems in the healthcare domain.

SKILLS

- **Software Skills:**
  - ◊ **Fluent: Python** (PyTorch, TensorFlow, Keras, Scikit-learn, Numpy, Gradio, Scipy, Pandas, Matplotlib, MNE, OpenCV, PySpark, Kubeflow, Django)
  - ◊ **Basic**: Docker, Git, Linux, Java, C++, Bash
- **Experimental:**
  - ◊ **Statistics, Signal Processing, Medical Image Processing**
- **Cloud Skills:**
  - ◊ **Microsoft Azure, Google Cloud Platform (GCP), AWS**
- **Soft Skills:**
  - ◊ **Critical Thinking, Communication, Teamwork, Attention to Detail**

COURSES AND CERTIFICATES

- **Machine Learning** by Stanford University, Coursera **Feb 2020**
  Grade: 94.11 See credential
- **Deep Learning Specialization** by Deeplearning.ai, Coursera **Jul 2020**
  Grade: 100 See credential
- **DeepLearning.AI TensorFlow Developer Professional Certificate** by Deeplearning.ai, Coursera **Jul 2020**
  Grade: 98.43 See credential
- **Advance python programming and object-oriented thinking course** Quera **Feb 2020**
  Grade: 98.43 See credential
- **Task-Oriented Course In Linux** Quera **Mar 2023**
  Grade: 98.43 See credential

HONORS AND AWARDS

- **2020 International BCI Competition 6^{th} Place** **Jan 2021**
  - ◊ Classifying hand grasping motion i.e. cylindrical, spherical, lumbrical
  - ◊ The final result on Classifying this dataset is 40.35%
- **Iran national university entrance for B.Sc** **2018**
  - ◊ Ranked top 0.3% (over 200,000 students)

LANGUAGES

- **TOEFL iBT: 93 (Dec 16, 2023)**
- **Persian: Native Language**

REFERENCES

- **Dr. Behrooz Nasihatkon**: Assistant Professor at K. N. Toosi University of Technology — CEO at Rahbin Sanat Nasir
  Email: nasihatkon@kntu.ac.ir linkedin
- **Dr. Andishe Partovi**: AI/ML specialist at Google Cloud — Co-Founder at Metronome — PhD candidate University of Melbourne Australia
  Email: andipartovi@google.com linkedin
- **Dr. Farhad Goodarzy**: Senior Researcher at the University of Melbourne Australia — Data Scientist, Senior Position at Fraim
  Email: goodarzy@unimelb.edu.au linkedin