AREF EINIZADE

Image, Data, Signal (IDS), Télécom Paris, Institut Polytechnique de Paris, France Emails: aref.einizade@yahoo.com, aref.einizade@telecom-paris.fr Personal website: https://arefeinizade.github.io/

RESEARCH and EDUCATION POSITIONS

Nov 2023 - Now **Postdoctoral Researcher** Télécom Paris, Institut Polytechnique de Paris, France Thesis: Learning Multi-domain Graphs from Data via Graph Machine Learning. Supervisors: Jhony H. Giraldo, and Fragkiskos D. Malliaros Doctor of Philosophy in Electrical Engineering (Avg. Grade = 18.57/20) Oct 2018 - Feb 2023 Sharif University of Technology (SUT), Tehran, Iran Thesis: Subspace Identification and Graph Learning of Graph Signals: Application in Brain Signal Processing. Master of Science in Electrical Engineering (Hons) (Avg. Grade = 18.41/20) Oct 2016 - Sep 2018 Sharif University of Technology (SUT), Tehran, Iran

Thesis: Iterative Pseudo Sparse Partial Least Square and its Higher-Order variant: Application to inference from high-dimensional biosignals.

Bachelor of Science in Electrical Engineering-Digital Systems Shahid Beheshti University (SBU), Tehran, Iran

RESEARCH INTERESTS

Learning Graphs from Data, Graph Signal Processing, Graph Neural Network, Machine Learning, Applications.

PUBLICATIONS 🛛 🖻 🖓

- Einizade, A., Malliaros, F. D., & Giraldo, J. H. (2024). "Continuous Product Graph Neural Networks" The Thirty-eighth Annual Conference on Neural Information Processing Systems (NeurIPS). 👼 🚳
- Einizade, A., Malliaros, F. D., & Giraldo, J. H. (2024). "Spatiotemporal Forecasting Meets Efficiency: Causal Graph Process Neural Networks", arXiv preprint. Under Review at IEEE TNNLS.
- Giraldo, J. H., Einizade, A., Todorovic, A., Castro-Correa, J. A., Badiey, M., Bouwmans, T., & Malliaros, F. D. (2024). "Higher-Order GNNs Meet Efficiency: Sparse Sobolev Graph Neural Networks", IEEE Transactions on Signal and Information Processing over Networks. 🔨 👼
- Einizade, A., Giraldo, J. H., Malliaros, F. D., & Sardouie, S. H. (2024). "Estimation of a causal directed acyclic graph process using non-gaussianity", Digital Signal Processing.
- Einizade, A., Sardouie, S. H. (2023). "Learning Product Graphs from Spectral Templates", IEEE Transactions on Signal and Information Processing over Networks. 🔩 🗘
- Einizade, A., Nasiri, S., Sardouie, S. H., & Clifford, G. D. (2023). "ProductGraphSleepNet: Sleep staging using product spatio-temporal graph learning with attentive temporal aggregation", Neural Networks. O
- Einizade, A., Sardouie, S. H. (2023). "Iterative Pseudo-Sparse Partial Least Square and its Higher-Order variant: Application to inference from high-dimensional biosignals", IEEE Transactions on Cognitive and Developmental Systems.
- Einizade, A., Sardouie, S. H. (2023). "Joint Graph Learning and Blind Separation of Smooth Graph Signals Using Minimization of Mutual Information and Laplacian Quadratic Forms", IEEE Transactions on Signal and Information Processing over Networks, 9, 35-47. 🔮 🔿

Oct 2011 - Sep 2015

- Einizade, A., Nasiri, S., Mozafari, M., Sardouie, S. H., Clifford, G. D. (2023). "Explainable automated seizure detection using attentive deep multi-view networks", Biomedical Signal Processing and Control.
- Alizade, M. H., Einizade, A., Giraldo J. (2023). Kernel-based Joint Multiple Graph Learning and Clustering of Graph Signals. arXiv preprint. Under Review in IEEE Signal Processing Letters.
- Einizade, A., Sardouie, S. H. (2022). "Robust blind separation of smooth graph signals using minimization of graph regularized mutual information", Digital Signal Processing, 132, 103792.
- Einizade, A., Mozafari, M., Jalilpour, S., Bagheri, S., Sardouie, S. H. (2022). "Neural decoding of imagined speech from EEG signals using the fusion of graph signal processing and graph learning techniques", Neuroscience Informatics, 2(3), 100091.
- Einizade, A., Sardouie, S. H. (2022). "A unified approach for simultaneous graph learning and blind separation of graph signal sources", IEEE Transactions on Signal and Information Processing over Networks, 8, 543-555.
- Einizade, A., Sardouie, S. H., Shamsollahi, M. B. (2021). "Simultaneous graph learning and blind separation of graph signal sources", IEEE Signal Processing Letters, 28, 1495-1499.
- Mijani, A. M., Einizade, A., Shamsollahi, M. B., Beyglou, B. T. (2020). "Cross-subject and cross-paradigmlearning using convolutional neural network for P300 event-related potential detection", J Neurol Neurosci, 11(5), 329.
- Einizade, A., Mozafari, M., Sardouie, S. H., Nasiri, S., Clifford, G. (2020). "A deep learning-based method for automatic detection of epileptic seizure in a dataset with both generalized and focal seizure types", In 2020 IEEE Signal Processing in Medicine and Biology Symposium (SPMB). IEEE.
- Einizade, A., Mozafari, M., Rezaei-Dastjerdehei, M., Aghdaei, E., Mijani, A. M., Sardouie, S. H. (2020). "Detecting ADHD children based on EEG signals using Graph Signal Processing techniques", In 2020 27th National and 5th International Iranian Conference on Biomedical Engineering (ICBME). IEEE.
- Einizade, A., Sardouie, S. H. (2020). "Sparsification of the PLS Regression Algorithm using L2-Norm of Weighted Coefficients: Application in Emotion Recognition", Iranian Journal of Biomedical Engineering.

Research/Job Experience

- Attended the jury group of the defense sessions of two MSc internship projects. August 2024
- Teacher Assistant (TA) in the Source separation and Non-negative Matrix Factorization labs at Télécom Paris, Institut Polytechnique de Paris (IP-Paris). June 2024
- Teacher Assistant (TA) in selected courses: Deep Learning, Computer Vision, Tensor Decompositions in Signal Processing, EEG Signal Processing, Medical Image Processing, Medical Image Systems, Biomedical Signal and Image Processing Lab: ~ 150 hours.
 Oct 2017 - Sep 2022
- Co-Supervision of several B.Sc. and M.Sc. students at EE department of SUT. Sep 2022 Present
- EEG signal processing presentation at Sharif Neuroscience Symposium. Jan 2020 Feb 2020
- Teaching fundamentals in Math and Physics for university entrance students. Oct 2014 Oct 2015

AWARDS AND HONORS

- Winning 2023 HI! PARIS postdoctoral fellowship with a value of 120,800 euros, France.
- Winning 2023 Digital Futures postdoc fellowship (non-taken) of KTH University, value: 42K euros/year, Sweden.
- Best Ph.D. Student, EE Department, Sharif University of Technology.
- Top %1 in Graduate (and Ph.D.) national entrance exam.
- Ranked 1st in Master of Science, Bioelectric Major, EE Department, Sharif University of Technology.

INVITED REVIEWER

IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Cybernetics, Neural Networks Elsevier, Scientific Reports, IEEE Signal Processing Letters, IEEE Transactions on Affective Computing.

COMPUTER SKILLS

Programming Languages Python, MATLAB, C/C++ (Minor).

Relevant Libraries Keras, Tensorflow, PyTorch, OpenCV, LATEX.

LANGUAGES

English: Professional Proficiency. French: In the learning process, in the A2 level. Farsi: Native Language.