HOOMAN ROKHAM, PH.D.

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SUMMARY

My research focuses on artificial intelligence, particularly in the areas of deep learning, machine learning, and their real-world applications. I am especially interested in improving the robustness and performance of AI models, including addressing challenges such as label noise. By developing innovative techniques to enhance model accuracy and reliability, my goal is to advance AI technologies across various domains, ensuring they can handle noisy, imperfect data and scale effectively in diverse environments.

SKILLS

- Programming (Python, C/C++, SQL, MATLAB, R, HTML, CSS, JavaScript, PHP)
- Deep Learning Frameworks and Machine Learning tools (TensorFlow, Keras, PyTorch, Scikit-learn, Statsmodels)

EXPERIENCE

Postdoctoral Research Associate | TReNDS Center | January 2024 – Present

In this role, I conduct advanced research in machine learning, focusing on the application of models to neuroimaging data. I design and evaluate machine learning experiments aimed at extracting meaningful insights from these datasets. My responsibilities include overseeing the entire data lifecycle, from collection and analysis to data management. I also collaborate closely with principal investigators to prepare, publish, and present research findings in scientific journals and at conferences. Additionally, I contribute to grant proposal development, working with both internal and external research teams to secure funding for innovative projects.

Graduate Student Research Assistant | Georgia Institute of Technology, TReNDS Center | May 2019 – December 2023

During my time at Georgia Tech, I conducted research at the intersection of machine learning and neuroimaging data. My work involved designing and evaluating machine learning experiments tailored to neuroimaging applications. I collaborated with principal investigators to prepare and publish scientific manuscripts, while also presenting research findings at conferences and academic venues.

Graduate Student Research Assistant | University of New Mexico | December 2016 – May 2019

At UNM, I conducted research in machine learning, neuroimaging, and cybersecurity. My work involved designing and evaluating experiments to apply advanced machine learning techniques to these interdisciplinary domains, contributing to the development of innovative research methodologies.

EDUCATION

- **Ph.D. Electrical and Computer Engineering | Georgia Institute of Technology** December 2023
- **Ph.D. Student Computer Science | University of New Mexico** MAY 2019
- **Master of Science Computer Science | University of New Mexico** AUGUST 2017
- **Bachelor of Computer Engineering - Software | Azad University** JULY 2012

TECHNICAL CERTIFICATIONS

- Coursera Neural Networks and Deep Learning
- Coursera Structuring Machine Learning Projects
- Coursera Improving Deep Neural Networks:Hyperparameter tuning, Regularization and Optimization

PUBLICATIONS

- Rokham, Hooman, et al. "Label NOISE-Robust Ensemble Deep Multimodal Framework for NEUROIMAGING Data" 46th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), 2024
- Falakshahi, Haleh, et al. "Paht-Based Differential Analysis in Near-Centenarians and Centenarians Brain Network" 46th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), 2024
- Rokham, Hooman, et al. "A Deep Learning Approach for Psychosis Spectrum Label Noise Detection from Multimodal Neuroimaging Data" 45th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), 2023
- Falakshahi, Haleh, et al. " Network Differential in Gaussian Graphical Models from Multimodal Neuroimaging Data" 45th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), 2023
- Rokham, Hooman, et al. "Evaluation of boundaries between mood and psychosis disorder using dynamic functional network connectivity (dFNC) via deep learning classification" Human Brain Mapping, 2023
- Rokham, Hooman, et al. "MultiModal Framework for Mental Disorders Classification" Biological Psychiatry (2023)
- Rokham, Hooman, et al. "Relationship of Hemodynamic Delay and Sex Differences Among Adolescents Using Resting-state fMRI Data" IEEE International Conference on Biomedical and Health Informatics (BHI'22), September 2022
- Rokham, Hooman, et al. "Multimodal Classification of Mood and Mental " Biological Psychiatry (2022)
- Falakshahi, Haleh, et al. "Disorders Path-Based Differential in Multi-Modal Brain Networks" Biological Psychiatry (2022)
- Falakshahi, Haleh, et al. "Path analysis: A method to estimate altered pathways in time-varying graphs of neuroimaging data" Network Neuroscience (2022)
- Rokham, Hooman, et al. "Classification of Dynamic Resting fMRI Connectivity of Mood and Mental Disorders Using Different Categorization." Biological Psychiatry (2021)
- Falakshahi, Haleh, et al. Dynamic Brain Graph Analysis Show Unique Path Trajectory Weights in Schizophrenia" Biological Psychiatry (2021)
- Falakshahi, Haleh, et al. "Time-varying Graphs: A Method to Identify Abnormal Integration and Disconnection in Functional Brain Connectivity with Application to Schizophrenia." IEEE Bioinformatics and Bioengineering (2020)
- Rokham, Hooman, et al. "Addressing Inaccurate Nosology in Mental Health: A Multi Label Data Cleansing Approach for Detecting Label Noise from Structural Magnetic Resonance Imaging Data in Mood and Psychosis Disorders." Biological Psychiatry: Cognitive Neuroscience and Neuroimaging (2020).
- Falakshahi, Haleh, et al. "A Method for Analyzing Abnormal Integration Between the Brain Regions in Schizophrenia." Biological Psychiatry 87.9 (2020): S136.
- Rokham, Hooman, et al. "Detecting Label Noise from Multi-site Structural Magnetic Resonance Imaging Data to Mitigate Inaccurate Nosology in Mental Health." Biological Psychiatry 87.9 (2020): S269.
- Rokham, Hooman, Haleh Falakshahi, and Vince D. Calhoun. "A data-driven approach for stratifying psychotic and mood disorders subjects using structural magnitude resonance imaging data." Medical Imaging 2020: Computer-Aided Diagnosis. Vol. 11314. International Society for Optics and Photonics, 2020.

- Falakshahi, Haleh, et al. "Capturing Dysconnectivity in Schizophrenia Using Resting-state Functional Magnetic Resonance Imaging." OHBM 2020
- Falakshahi, Haleh, et al. "Meta-modal Information Flow: A Method for Capturing Multimodal Modular Disconnectivity in Schizophrenia." IEEE Transactions on Biomedical Engineering (2020)
- Abrol, Anees, Hooman Rokham, and Vince D. Calhoun. "Diagnostic and Prognostic Classification of Brain Disorders Using Residual Learning on Structural MRI Data." 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). IEEE, 2019
- Arefi, Meisam Navaki, et al. "Faros: illuminating in-memory injection attacks via provenance-based whole-system dynamic information flow tracking." 2018 48th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN). IEEE, 2018.

Rokham, Hooman, and Hale Falakshahi. "Web Users Clustering Analysis." International Journal of Computer Science and Information Security 12.9 (2014): 49.