Pramath Girish Haritz

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EDUCATION

PES University   Bangalore, Karnataka
Bachelor of Technology in Electronics and Communication, specialization in Signal Processing   *Aug 2021 – Present*

- Relevant Courses: Linear Algebra(UE21MA241B), Principles of Digital Signal Processing(UE21EC252B), Signals and Systems(UE21EC243A), Artificial Neural Networks(UE21EC343AC1), Robotic Systems(UE21EC342BC3), Deep Learning (UE21EC343BC3) and Machine Learning and Applications(UE21EC352B)

EXPERIENCE

Undergraduate Research Intern   June 2024 – August 2024
Center for Robotics, Automation and Intelligent Systems, cRAIS PES University   *Bangalore, Karnataka*

- Applied machine learning to analyze EEG signals and physiological data, supporting CMD diagnosis.
- Explored innovative applications of machine learning to advance psychology and psychiatry.
- Enhanced psychological screening processes with optimized machine learning algorithms.

Teaching Assistant   August 2024 – Present
Artificial Neural Networks (Elective), PES University   *Bangalore, Karnataka*

- Assisted in developing and delivering course content for the "Artificial Neural Networks" course (UE22EC343AC1), enhancing students' understanding of neural network concepts and applications.
- Provided mentorship and guidance to students, facilitating their project development and implementation of neural network models using Python and MATLAB.
- Curated and facilitated access to tailored resources, including tutorials, documentation, and blogs, addressing specific technical needs and fostering project success.

Hackathon Mentor   April 2024 – May 2024
SYNAPSE 2.0 National Level Hackathon   *Bangalore, Karnataka*

- Resolved complex technical issues, ensuring project continuity.
- Mentored participants, providing guidance to advance project development and technical skills.
- Curated and provided access to tailored resources, addressing specific technical needs.

PROJECTS

Detection of Depression Through EEG Signals   Completed August 2024

- Developed a novel Deep Learning model to detect depression using EEG data, leveraging advanced signal processing techniques to extract relevant features indicative of depressive states.
- Implemented a Novel Kolmogorov - Convolutional Neural Network (CKAN) architecture to distinguish between depressive and non-depressive EEG patterns, thereby enhancing diagnostic precision.
- Utilized a diagnostic approach that enhances accessibility for individuals in diverse geographical regions.

Emotion-Cause Pair Extraction From Text Extracts   Ongoing

- Implemented a novel attention mechanism within a neural network framework to effectively extract emotion-cause pairs from textual data, improving the understanding of emotional contexts.
- Enhanced natural language processing capabilities by integrating attention-based models, resulting in more accurate identification of causal relationships between emotions and their triggers in text.
- Transformed the underlying dataset into a more usable format for future research in the field.

Achievements

Winners at World Robotics championship - Technoxian 2024
- We emerged victorious in the FPV Drone Racing category, demonstrating exceptional skill and precision.
- Reached the finals in the Fast Line Follower event.
- Secured a top 5 finish in the challenging Drone Rescue competition.

Successful Run at Student Level Hackathons
- 1st Place, TERRATHON 2.0 - Won 1st place for a project detecting Parkinson's Disease in premature stages using deep learning techniques.
- 2nd Place, Hallothon State-Level Hackathon - Created a platform to provide beginners with data-driven insights and predictive modeling for informed investment decisions.
- 2nd Place, Hack-ezz (Hardware Design Contest) - Developed a project predicting the Vertical Ground Reaction Force (VGRF) using inertial sensors, a crucial component in GAIT analysis.

Technical Skills

Languages: Python, MATLAB
Frameworks: PyTorch, TensorFlow, Fast.AI, Lightning, Keras
Developer Tools: Git, Docker, VS Code
Libraries: pandas, NumPy, Matplotlib, Seaborn, SciPy, MNE-Python, NeuroKit2, BioSPPy, OpenCV
Concepts: Large Language Models (LLMs), Fine-Tuning, Computer Vision, Natural Language Processing (NLP), Biomedical Signal Processing, Data Analysis, Statistical Learning, Deep Learning

References

Dr. Shikha Tripathi   PES University
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Dr. Niranjana Krupa   PES University
Professor and Domain Head - Signal Processing and Systems Engineering   *Bangalore, Karnataka*
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To learn more about my background and accomplishments, please feel free to visit my website or LinkedIn profile. For any inquiries, you are welcome to contact me via email.