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|  | ISTANBUL AYDIN UNIVERSITY  SOFTWARE ENGINEERING DEPARTMENT  GRADUATION PROJECT PROPOSAL |

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| **Project Title** | Classifying MR images and Detecting Tumors using ANNs in Image Processing, and The Contribution of Ensemble Techniques to Accuracy Rate | |
| **Project Team and Roles** | Sukru Bora KARAKUS (Supervisor)  Ismail EZA (Co-Supervisor) | |
| **Problem Statement** | Optimizing Artificial Neural Networks (ANNs) for MR Image classification and tumor detection poses challenges. The role of Ensemble techniques in improving accuracy rates needs exploration for enhanced medical image analysis. | |
| **Project’s Objectives** | Training and Classification of ANNs, Enhance accuracy rates in MRI image classification by artificial neural networks (ANNs).  Tumor Detection, and increased precision in tumor detection within MRI images using ANNs.  Exploration of Ensemble Techniques, Investigate the impact of Ensemble Techniques on enhancing accuracy rates.  Comparison of Architectures, evaluate different ANN architectures to identify the most effective models. | |
| **Methodology/Approach** | Gather and prepare datasets of MRI images.  Create and develop various ANN architectures.  Analyze ensemble methods for combining models.  Train model using datasets.  Use some metrics and measures to assess models.  Analyze and compare models.  Document methodology, datasets, and results.  Publish compatible models, results, and metrics. | |
| **Project Deliverables** | A tumor detection optimized MR image classification approach based on neural networks.  Results from real-world simulations demonstrate the dependability of the created models.  Thorough documentation that includes statistics, performance metrics, and methodological descriptions. | |
| **Timeline** | October | Research specific requirements for classifying MR images. |
| November | Examine previously used and currently used ANN methods for the analysis of MR images. |
| December | Plan and select the models of ANN for the classifying of MR images |
| January | Optimize the MR images to align them appropriately with the selected method. |
| February | Train models with the training data and use ensemble techniques to enhance accuracy. |
| March | Test the created models and adjust combinations of models using the datasets. |
| April | Investigate the impact of ensemble techniques on accuracy and optimize their integrations. |
| May | Apply data visualization processes to make metrics and result more understandable. |
| June | Prepare a document explaining datasets, performance metrics, and the approach. |