

DEPARTMENT OF APEX INSTITUTE OF TECHNOLOGY

**PROJECT PROPOSAL**

# Project Title:-

Neuro-Informatics: Integrating Deep Learning for Brain Image Analysis in Neurological Disorders

# Project Scope:-

The project aims to leverage neuroinformatics principles to integrate deep learning techniques for analyzing brain images in the context of neurological disorders. It involves collecting and preprocessing diverse brain imaging datasets, including MRI, fMRI, CT, and PET scans, along with corresponding clinical data. Deep learning models will be developed and trained to perform tasks such as image segmentation, classification, and prognosis prediction. Model performance will be rigorously evaluated and validated using standard metrics, with a focus on clinical relevance and interpretability. Ethical considerations regarding patient privacy and data security will be addressed throughout the project, and efforts will be made to disseminate findings to the scientific community and facilitate technology transfer for real-world applications.

**Significance of project**

The project addresses a critical need in healthcare by harnessing the power of neuroinformatics and deep learning to improve the diagnosis, treatment, and management of neurological disorders. Neurological disorders pose significant challenges due to their complex nature and heterogeneous manifestations, making accurate diagnosis and prognosis difficult. By integrating deep learning algorithms with brain image analysis, the project aims to enhance the precision and efficiency of disease detection, classification, and monitoring. This has the potential to significantly impact patient outcomes by enabling earlier interventions, personalized treatment plans, and better understanding of disease progression. Moreover, advancements in this field can contribute to the development of novel therapies and interventions tailored to individual patient profiles, ultimately improving the quality of life for those affected by neurological disorders.Top of Form

# Requirements:-

* **Python**

# Machine Learning

* **Data mining**

# Student Details:

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| --- | --- | --- | --- |
| **Name** | **UID** | **Mobile Number** | **Signature** |
| Raghav Bhatia | 20BCS6371 | 7901814018 |  |
| Ishal Walia | 20BCS6414 | 9816214540 |  |
| Hardik Sharma | 20BCS6355 | 8894265483 |  |

* + **Approval And Authority To Proceed**

We approve the project as described above, and authorize the team to proceed.

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| **Name** | **Title** | **Signature (with Date)** |
| Priyanka Kaushik | Supervisor |  |