**Research Materials**

**Links to Important Papers:**

1. [Paper on Brain Tumor Detection: Importance and Effectiveness](https://dl.acm.org/doi/abs/10.1016/j.asoc.2015.09.016)

* This paper discusses the significance and accuracy of brain tumor detection.

1. [Study on Neural Networks for Brain Tumor Detection](https://www.sciencedirect.com/science/article/abs/pii/S0925231212008028)
2. [Deep Learning in Healthcare: Key Considerations](https://sci-hub.se/https://doi.org/10.1038/s41591-018-0316-z)

* This article outlines important considerations for integrating deep learning into healthcare, including data privacy, bias mitigation, and the need for clinical validation.

1. [Residual CNN for IDH Status in Gliomas](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6051535/)

* This paper presents a residual convolutional neural network for determining IDH status in gliomas using MRI, showcasing the potential of deep learning in tumor characterization.

1. [3D U-Net for Brain Tumor Segmentation](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10773611/#ref-15)

* This study highlights the adaptation of the 3D U-Net model for brain tumor segmentation, incorporating contextual loss to improve the performance of MRI analysis.

1. [Classifiers for Prototypes and Reciprocals (CPR) Framework](https://arxiv.org/pdf/2212.08355)

* This paper introduces CPR, a framework for universal domain adaptation using dual classifiers and a curriculum learning strategy for confident sample identification.

**Important Resources and Datasets:**

* [BRATS 2020 Brain Tumor Dataset](https://www.med.upenn.edu/cbica/brats2020/data.html)
  + **How to Access:** Create an account on the [Synapse platform](https://www.synapse.org/Synapse:syn25829067/wiki/610863), fill out the [Google form](https://docs.google.com/forms/d/e/1FAIpQLSdfW8IBio7vuLLphjXxaJzoenqs2WS6o43rrgD5uzzY4AQjqA/closedform), and get access to the related training data. [Synapse](https://www.synapse.org/Synapse:syn25829067/wiki/610863) is the official platform for performance evaluation and ranking in tumor sub-region segmentation tasks.
* [Google Colab Notebook for Loading and Reading the Dataset](https://colab.research.google.com/drive/1fmSQKhxPVVxdPrvh7818V_X9Lh-EZxPE?usp=sharing)

**Reference Code for Brain Tumor Segmentation:**

* [Brain Tumor Segmentation using U-Net (Kaggle Code)](https://www.kaggle.com/code/zeeshanlatif/brain-tumor-segmentation-using-u-net)
* [Additional Brain Tumor Segmentation Code (Kaggle)](https://www.kaggle.com/code/auxeno/brain-tumour-segmentation-cv)