1.【研究の概要図】

この応募用紙に記載する研究の概要を１頁以内で図式や分かりやすい色を用い、概要図を作成してください。

※様式の変更・追加は不可（以下同様）

研究課題名：Estimating Glioma Grading using a multi-task deep learning model with IDH genotype self-prompt

「Glioma Grading using a multi-task deep learning model with IDH genotype self-prompt」
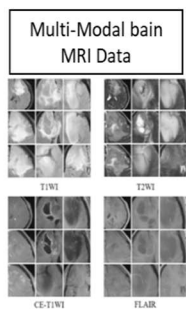
Background

A computer diagnosis system predicting the IDH genotype and Glioma (brain tumor) grade could help doctors for surgery.

Challenge points

Multi-Modal bain MRI Data

Multi-modal brain data have rich information for prediction.

Two challenges

Difficult to predict genotype and grades.

Medical dataset do not large enough to obtain a good results.

Research objectives

OpenAI ChatGPT

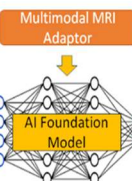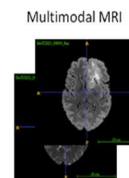AI foundation model trained by a huge dataset, which can achieve a better results on various task. (ex. ChatGPT)
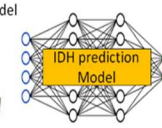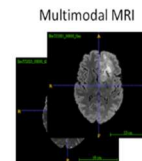
With AI foundation model the dataset problems can be solved.
With IDH genotype self-prompting, the diagnosis of tumor grades can be better.

Research plan

Multimodal brain MRI fusion foundation model

Multimodal MRI

Multimodal MRI Adaptor

AI Foundation Model

IDH status prediction

First Year

Multi-task self-prompt AI model for glioma diagnosis

Multimodal MRI

IDH prediction Model

IDH status prediction

Self-Prompt Embedding

Grade prediction Model

Grade I, II, III, IV

Second Year