AI Model Development: Data

인공지능 모델 개발 실습: 데이터

Hands-on AI Model Development (1): Predicting Memory Performance

- Locally acquired data ($n = 90$)
  - Structural, resting state functional, and diffusion-weighted MRI
  - Demographic information including age, sex, and years of education
  - Memory performance scores

- Training dataset: $n = 80$
  - Images
    - Grey matter map: train/GM/001-080.nii.gz
    - White matter map: train/WM/001-080.nii.gz
    - Regional homogeneity map: train/ReHo/001-080.nii.gz
    - Posterior cingulate gyrus (PCG)-based correlation map: train/PCGcorr/001-080.nii.gz
    - Fractional anisotropy map: train/FA/001-080.nii.gz
    - Mean diffusivity map: train/MD/001-080.nii.gz

– Features

- Grey matter features: train/GM.csv

- White matter features: train/WM.csv

- Regional homogeneity features: train/ReHo.csv

- PCG-based correlation features: train/PCGcorr.csv

- Fractional anisotropy features: train/FA.csv

- Mean diffusivity features: train/MD.csv

- Test dataset: *n* = 10
  - Images
    - Grey matter map: test/GM/001-010.nii.gz
    - White matter map: test/WM/001-010.nii.gz
    - Regional homogeneity map: test/ReHo/001-010.nii.gz
    - PCG-based correlation map: test/PCGcorr/001-010.nii.gz
    - Fractional anisotropy map: test/FA/001-010.nii.gz
    - Mean diffusivity map: test/MD/001-010.nii.gz

– Features

- Grey matter features: test/GM.csv

- White matter features: test/WM.csv

- Regional homogeneity features: test/ReHo.csv

- PCG-based correlation features: test/PCGcorr.csv

- Fractional anisotropy features: test/FA.csv

- Mean diffusivity features: test/MD.csv

Hands-on AI Model Development (2): Predicting Sex

- Data from UK Biobank (https://www.ukbiobank.ac.uk/) (n = 500)
  - Structural, resting state functional, and diffusion-weighted MRI
  - Demographic information including sex and age

- Training dataset: *n* = 450
  - Images
    - Grey matter map: train/GM/001-450.nii.gz
    - White matter map: train/WM/001-450.nii.gz
    - Default mode network map: train/DMN/001-450.nii.gz
    - Fractional anisotropy map: train/FA/001-450.nii.gz
    - Mean diffusivity map: train/MD/001-450.nii.gz

– Features

- Grey matter features: train/GM.csv

- White matter features: train/WM.csv

- Default mode network features: train/DMN.csv

- Fractional anisotropy features: train/FA.csv

- Mean diffusivity features: train/MD.csv

- Test dataset: $n = 50$
  - Images
    - Grey matter map: test/GM/001-050.nii.gz
    - White matter map: test/WM/001-050.nii.gz
    - Default mode network map: test/DMN/001-050.nii.gz
    - Fractional anisotropy map: test/FA/001-050.nii.gz
    - Mean diffusivity map: test/MD/001-050.nii.gz

– Features

- Grey matter features: test/GM.csv

- White matter features: test/WM.csv

- Default mode network features: test/DMN.csv

- Fractional anisotropy features: test/FA.csv

- Mean diffusivity features: test/MD.csv