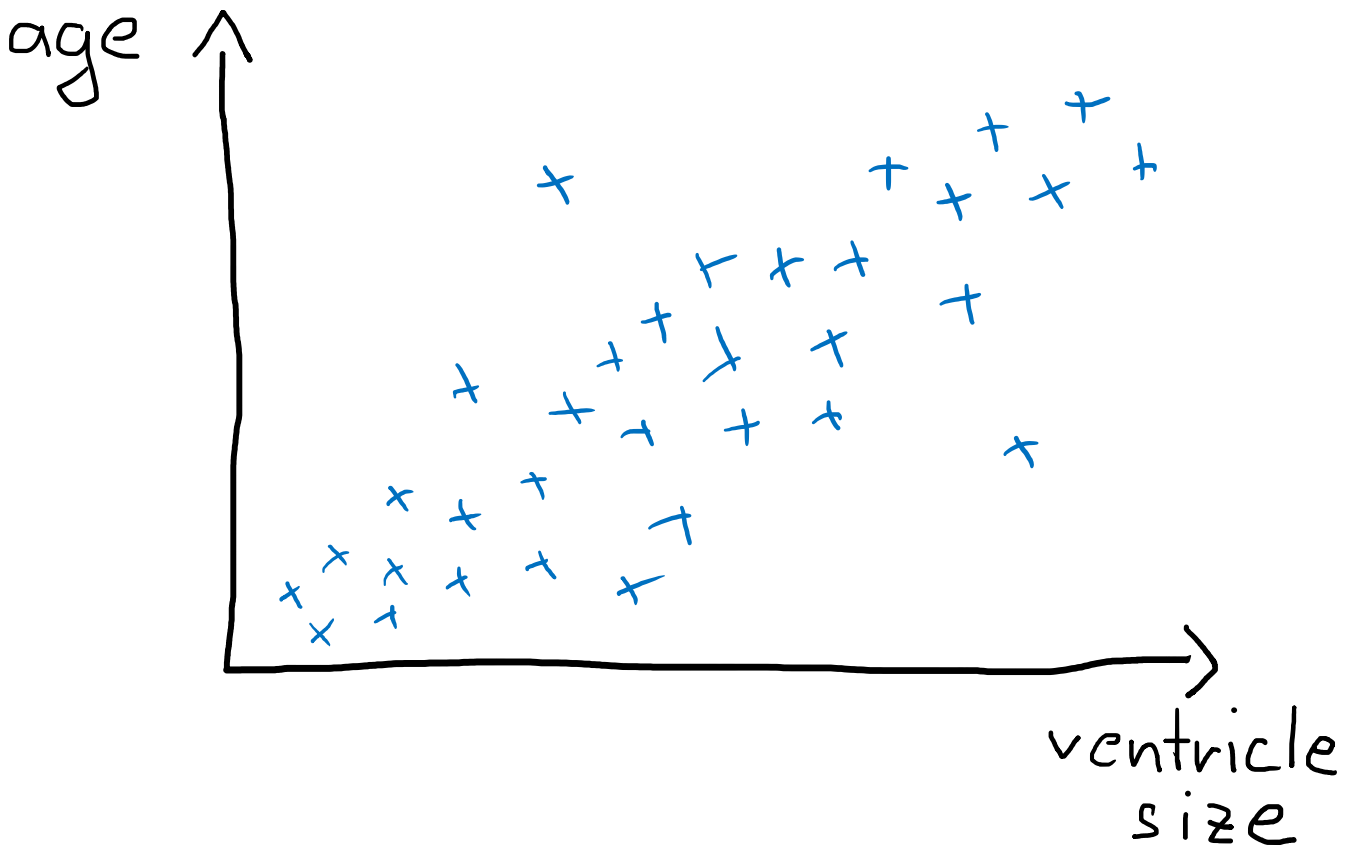
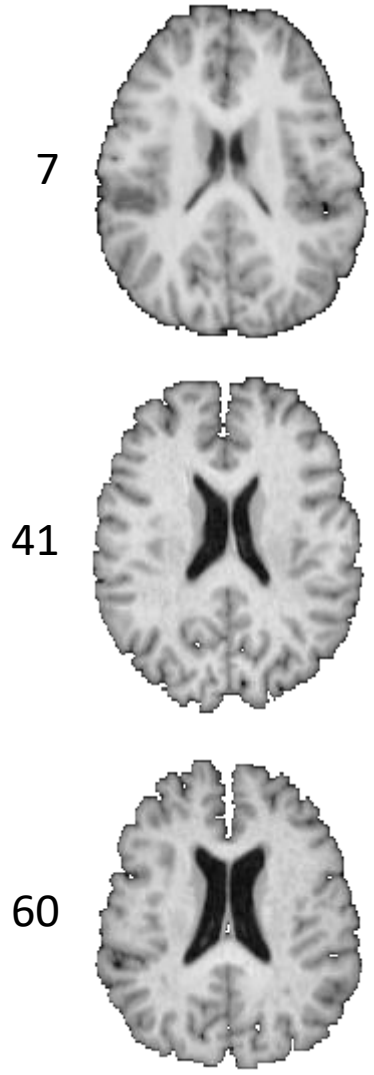
Imperial College
London

Machine Learning for Imaging

Coursework Introduction

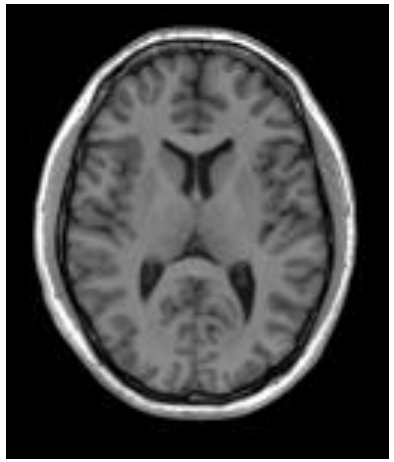
Age Regression from Brain MRI



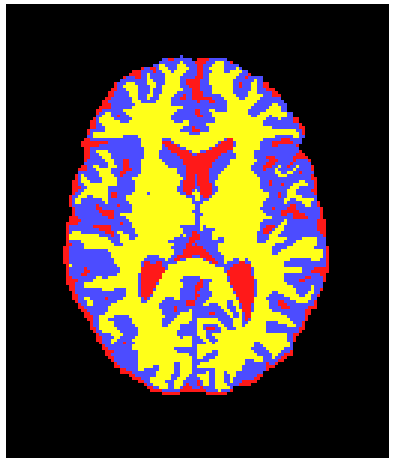


Age Regression from Brain MRI – Part A

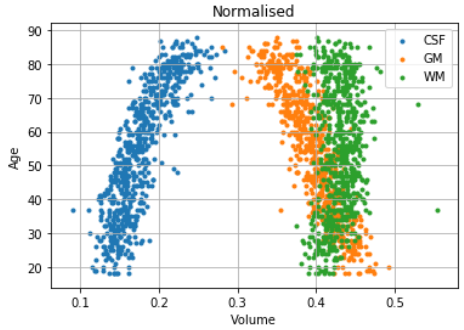
Volume-based regression using brain structure segmentation



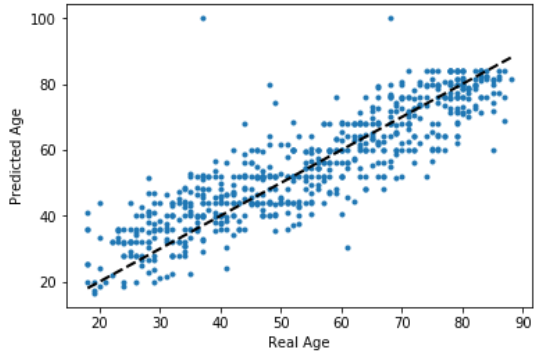
brain MRI



segmentation



volume features

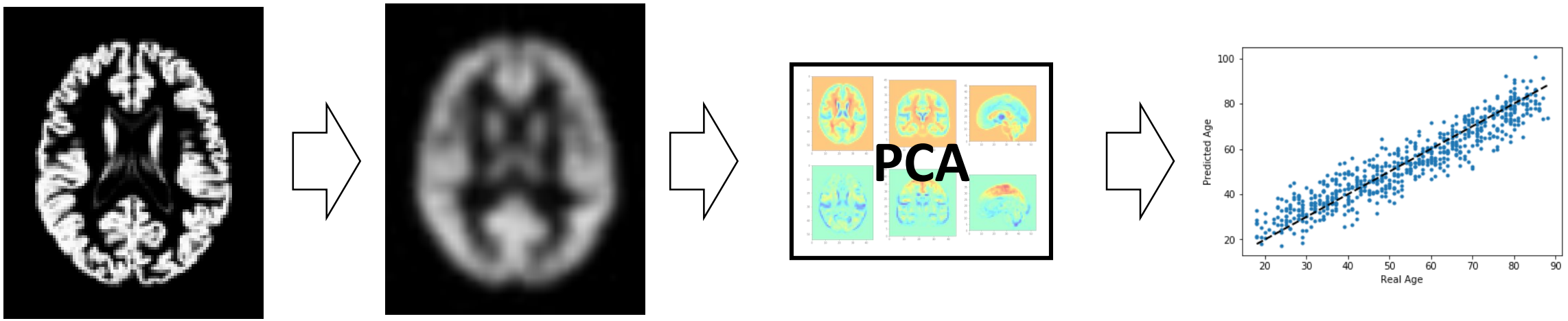


age regression

Goal: MAE ~ 7 years

Age Regression from Brain MRI – Part B

Image-based regression using grey matter maps

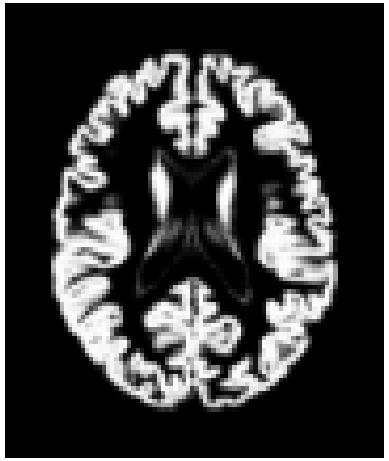


grey matter maps | pre-processing | dimensionality reduction | age regression

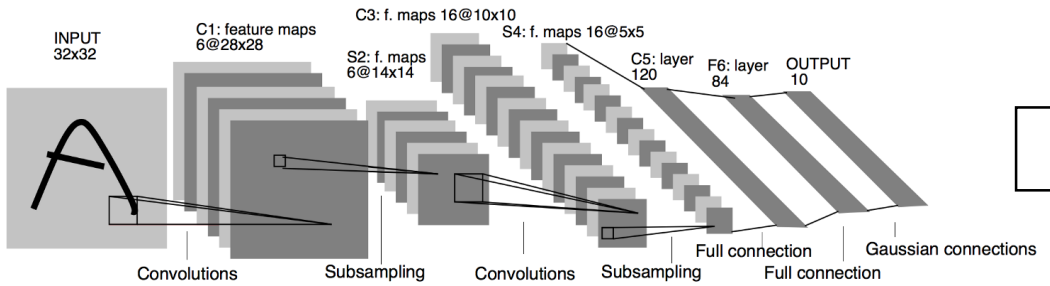
Goal: MAE ~ 5 years

Age Regression from Brain MRI – Part C

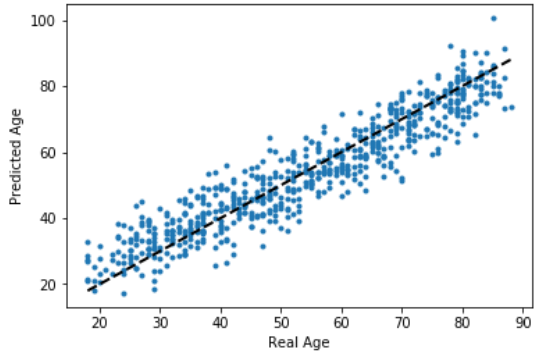
Image-based regression using grey matter maps



grey matter maps



CNN



age regression

Goal: MAE ~ ? years

Age Regression from Brain MRI – Data

MRI data and age from 652 healthy subjects

- 52 for training/validation of segmentation method in part A
- 500 for training/validation of age regression in part A – C
- 100 for final testing of age regression in part A – C
  - The test data will be released on **Monday, 24 February**

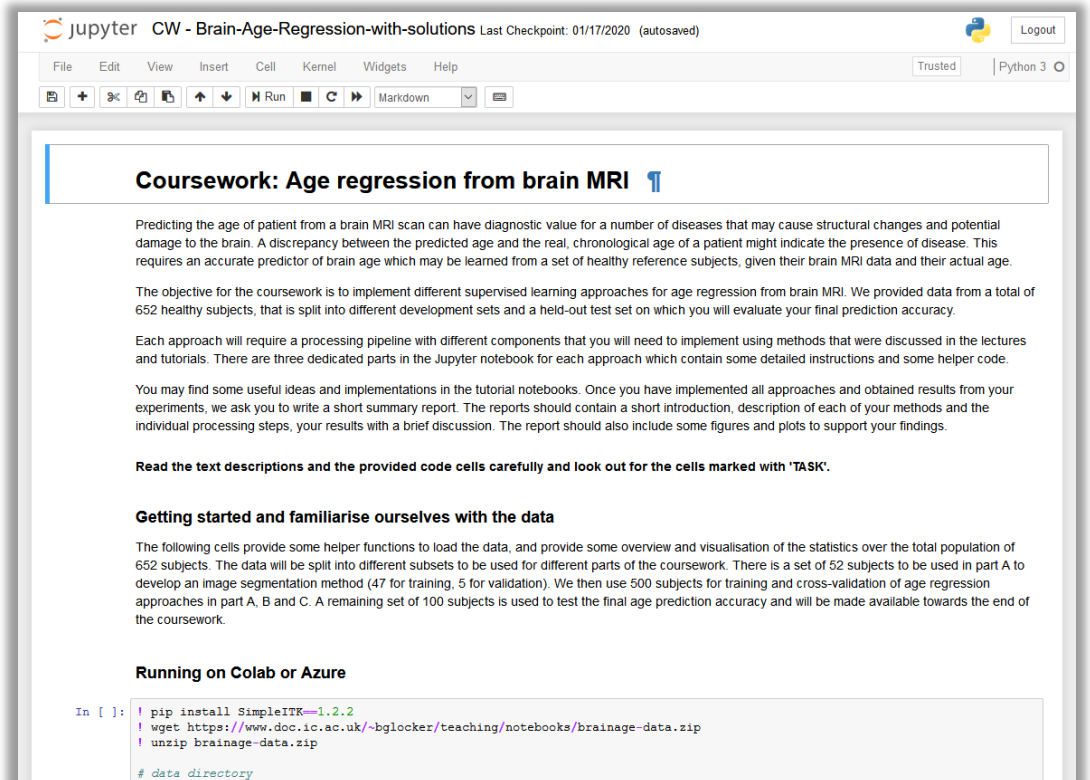
Azure

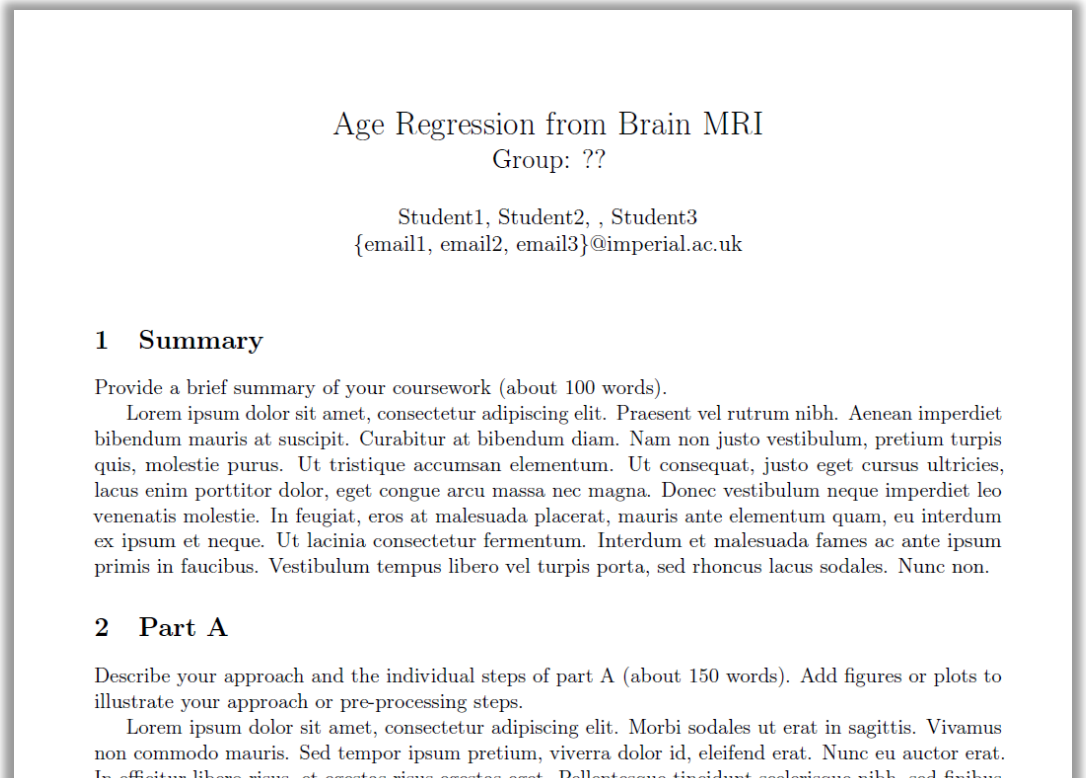
- Each group will get a **budget of $200**
- We provide instructions for setting up a VM on Piazza
- We recommend a single GPU VM (costs $0.90/h, ~9 days)
- **Make sure to ‘pause’ your VM when not needed**
- **Create only one VM per group!**

Templates

Notebook: https://gitlab.doc.ic.ac.uk/bglocker/mli-coursework

Report: https://www.overleaf.com/read/kjmygdqkqkxc





Coursework Submission

Two files

1. A zip file with your **Jupyter notebook**
2. The **report** as a PDF

Deadline

Friday, 28 February, 23:59