

Application of Machine Learning to Improve Understanding of Gd-deposition

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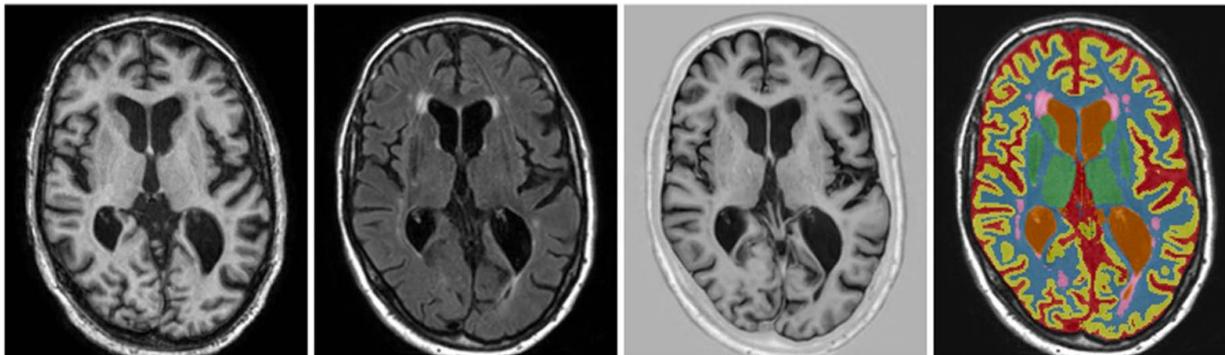
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Conflict of Interest

Research grants: Philips Healthcare and Bayer Healthcare 2. Speakers bureau: Philips Healthcare and Bayer Healthcare.

Machine Learning

- Powerful tool for fully automated assessment of (longitudinal) human brain MRI datasets
 - Segmentation
 - Quantification
 - Ideally suited for analysis of large datasets



Proposal

- Build a central repository with large number of brain MRI scans
 - Ideally: >100k-1M brain MRI scans
 - CE and non-CE
 - Preferably patients with multiple examinations over time
 - Aim to include data of healthy controls
 - Derive 'normal' values' as function of age for various brain structures
 - Not limited to deep brain nuclei
 - Compare patients who received Gd to patients who did not
 - Evaluate changes over time in patients who received (multiple doses) Gd and compare these changes to patients who did NOT receive Gd
 - Correlate quantitative measures of Gd-deposition to clinical outcomes