Application of Machine Learning to Improve Understanding of Gd-deposition

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Conflict of Interest

Machine Learning

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

Moeskops et al. Neuroimage Clin 2017;17:251-262
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