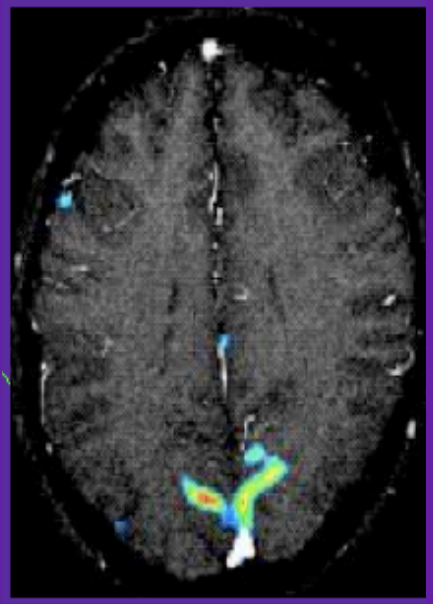
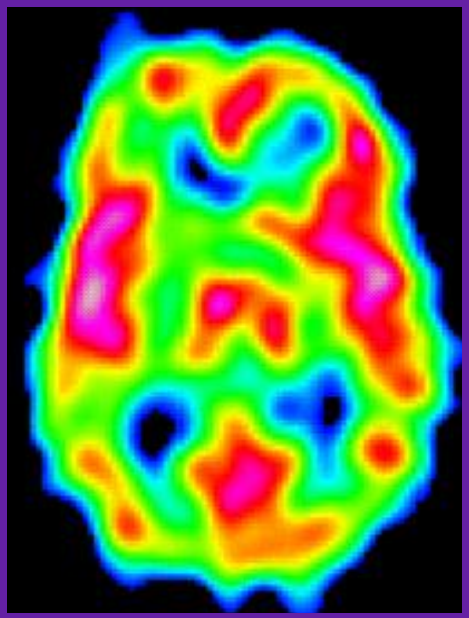
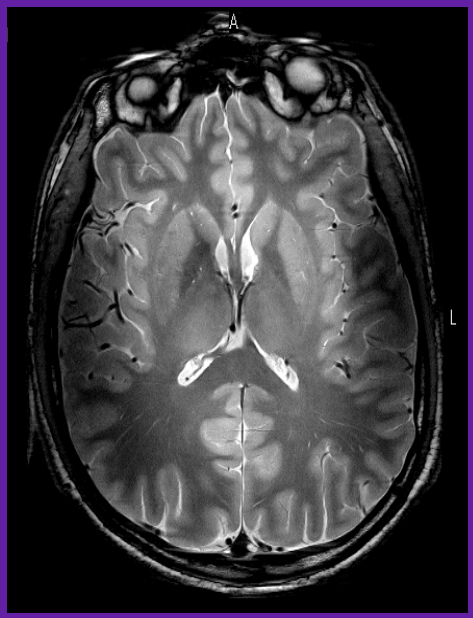
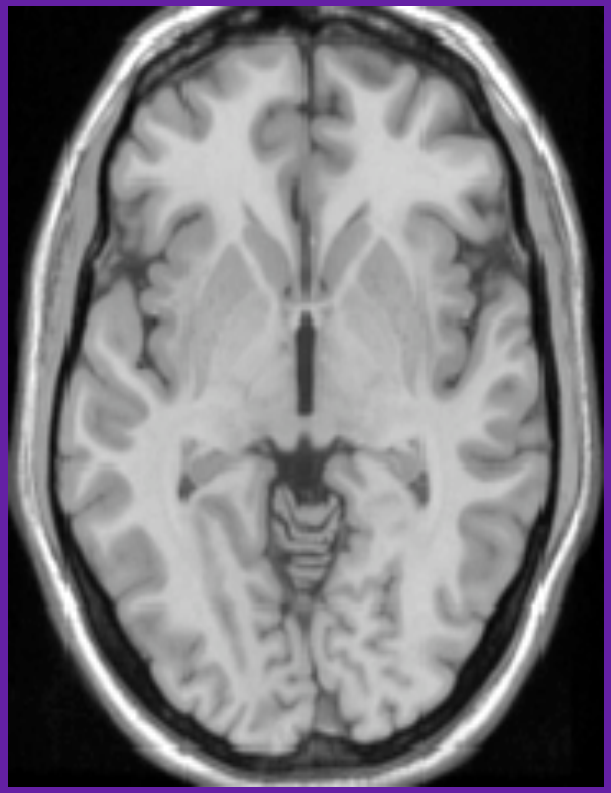
# Neuroimaging technologies

| EEG | fMRI | FDG-PET | aMRI |
| --- | --- | --- | --- |
|  |  |  |  |
| ms | sec | min | indefinite |

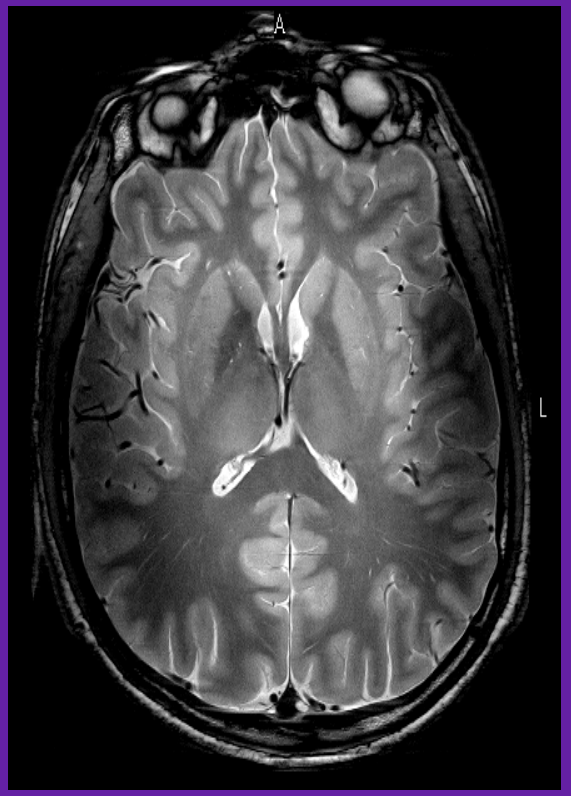
# Magnetic Resonance Imaging: the MRI scanner

# Improvements in MRI resolution

0.1T
Nottingham, 1978



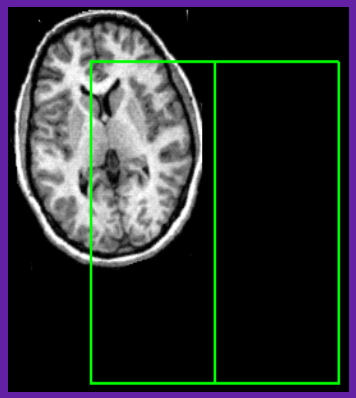
1.5T, 27 averages
Montreal, 1995



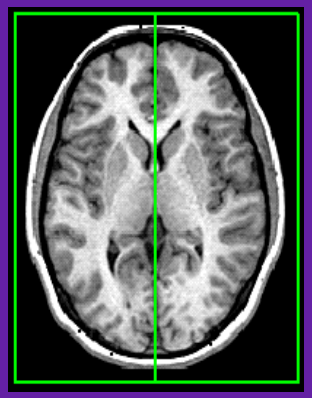

7.0T
Nottingham, 2005

# Image processing of MRI inputs

## Analysis

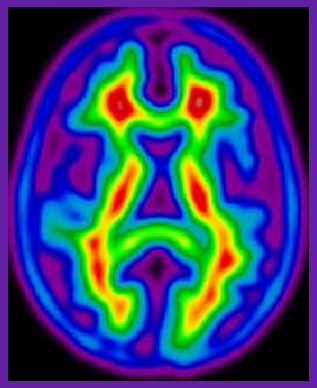


"Native" MRI

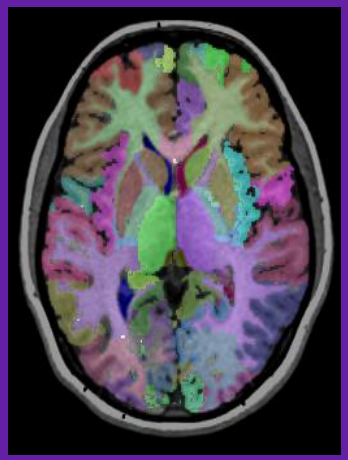


Registered MRI

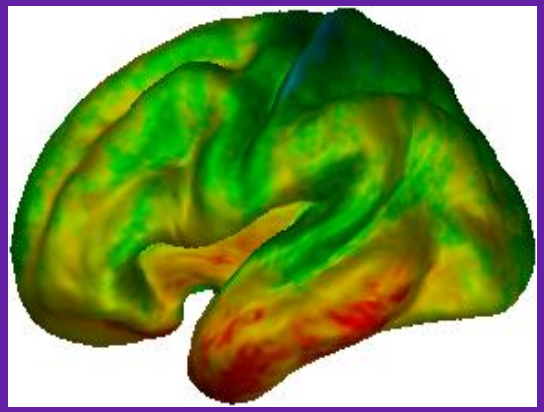
Tissue Classification



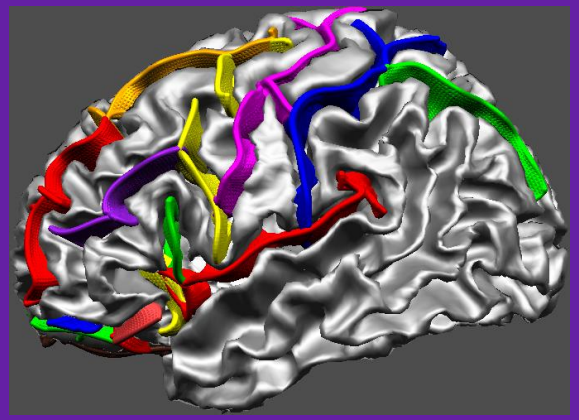
White-matter Density



Segmentation



Cortical thickness



Cerebral sulci

TP

# fMRI imaging

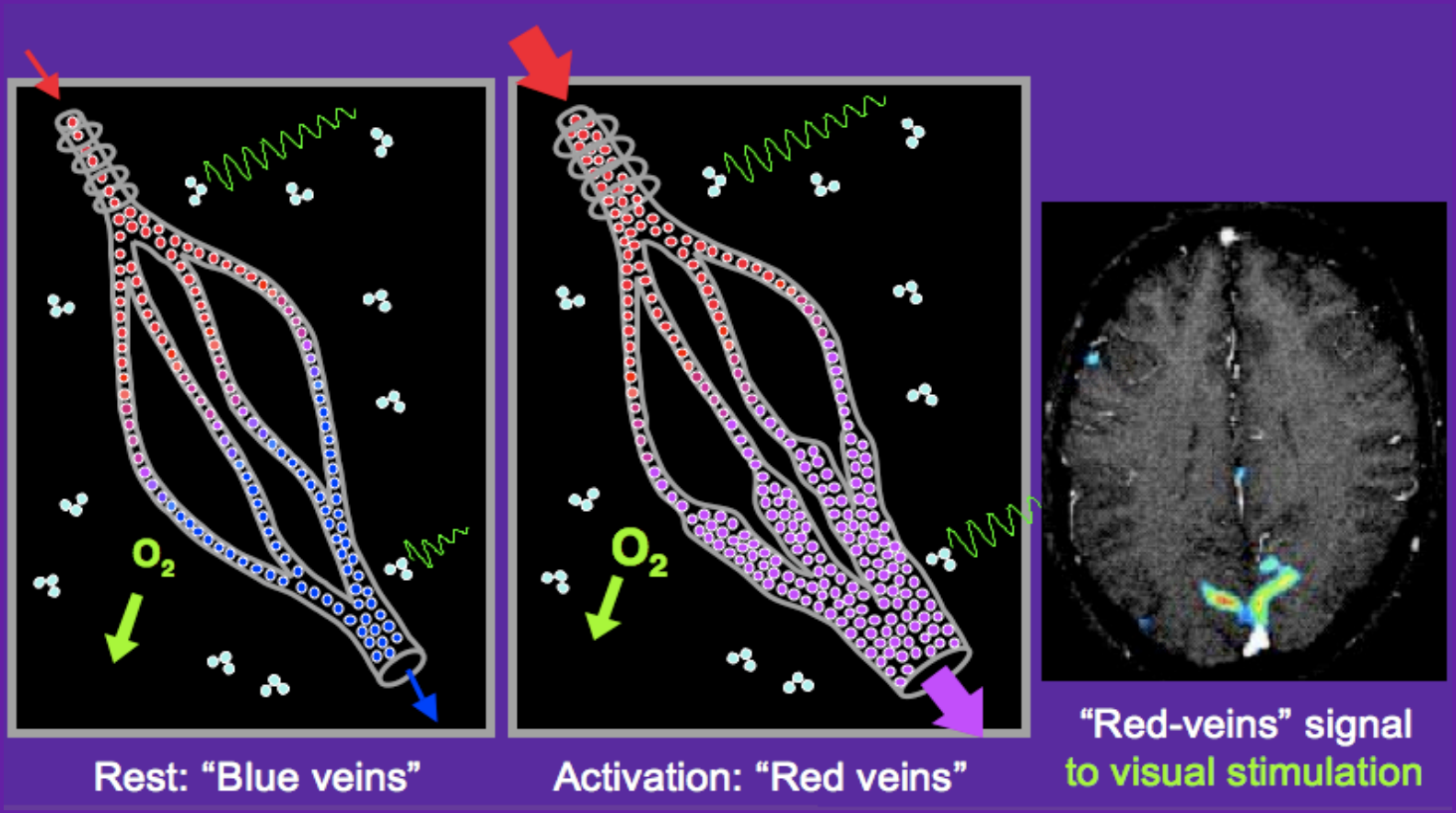



Image © 2010 DigitalGlobe
© 2010 Cnes/Spot Image
©2009 Google
30°49'53.81" S 121°21'30.30" E elev 0 m
Eye alt 2.23 km

# In a bit more detail


- Sercombe, H. (2010) Risk dynamics and the teenage brain. In *Counselling Children and Young People.* March. At http://www.ccyp.co.uk/journal.php
- Sercombe, H. (2010) The teen brain research: critical perspectives. *Youth and Policy*. No 105.
- Sercombe, H. (2010) The gift and the trap: working the "teen brain" research into our concept of youth. *Journal of Adolescent Research* Vol 25 No 1 pp 31-47.
- Sercombe, H. and Paus, T. (2009) The teen brain research: implications for practitioners. *Youth and Policy* No. 103, Summer, pp 25-38.