Braingluschi Scan Information Below is more information on the directory structure for the COBRE imaging data. Also below are the imaging parameters for each series. **Directory structure:** var/www/html/dropbox/1139\_anonymized/human: internal directory structure /dicom OR /behavioral: this directory is the data type. /dicom contains DICOM files and /behavioral contains timing and log files for the GATE functional task. /triotim: scanner name /vcalhoun: Pl /cobre\_07325: Study Name and Study Number /A000XXXXX: Participant ID /Session\_1: scan session number. Due to the fact that COBRE data was collected across several different sub studies, some participants have more than one scan session. The scan session numbers are chronological. Series Label Description dti\_35dir Diffusion tensor imaging (DTI) is a magnetic resonance imaging technique that enables the measurement of the restricted diffusion of water in tissue in order to produce neural tract images instead of using this data solely for the purpose of assigning contrast or colors to pixels in a cross sectional image. GATE\_V01\_R01, GATE\_V01\_R02, GATE\_V01\_R03, GATE\_V01\_R04 During the gating task, participants passively listened to single tones (2000 or 3000 Hz) or pairs of identical (two 2000 Hz tones) or pairs of non-identical (2000 and 3000 Hz) tones. The gating task therefore exhibits the brain's ability to inhibit repetitive versus novel stimuli. mprage\_5e T1-weighted scans refer to a set of standard scans that depict differences in the spin-lattice (or T1) relaxation time of various tissues within the body. T1 weighted images can be acquired using either spin echo or gradient-echo sequences. RSTpre\_V01\_R01 Subjects were instructed to keep their eyes open and look at a fixation cross during this sequence. t2\_tse\_tra\_192 Image made with a sequence with long TR and TE to show contrast in tissues with varying T2 relaxation times; water gives a strong signal. mprage\_5e SIEMENS MAGNETOM TrioTim syngo MR B17 TA: 6:03 PAT: 2 Voxel size: 1.0×1.0×1.0 mm Rel. SNR: 1.00 USER: tfl\_mgh\_multiecho Integrated Reference scan mode **Properties** Prio Recon Off Image Filter Off Off Before measurement Distortion Corr. After measurement Unfiltered images Off On Load to viewer On Prescan Normalize Inline movie Off Normalize Off Off Auto store images On B1 filter Load to stamp segments Off Raw filter Off Load images to graphic Off Elliptical filter Off segments Geometry Auto open inline display Off Multi-slice mode Single shot Start measurement without On Series Interleaved further preparation Wait for user to start Off System Start measurements single Body Off **HEP** On Routine HEA On Slab group 1 Slabs 1 Positioning mode REF Dist. factor 50 % Table position Н Position R2.7 A35.1 H10.8 Table position 0 mm Orientation S > T-2.8 > C2.6**MSMA** S - C - T Phase enc. dir. A >> P Sagittal  $R \gg L$ Rotation 0.00 deg Coronal  $A \gg P$ F >> H Phase oversampling 0 % Transversal 0.0 % Slice oversampling Save uncombined Off Slices per slab 192 Coil Combine Mode Adaptive Combine FoV read 256 mm Auto Coil Select Default FoV phase 100.0 % Shim mode Tune up Slice thickness 1.00 mm Adjust with body coil Off 2530 ms Confirm freq. adjustment Off TE 1 1.64 ms Assume Silicone Off TE 2 3.5 ms 0.000 V ? Ref. amplitude 1H 5.36 ms TE<sub>3</sub> Adjustment Tolerance Auto TE 4 7.22 ms Adjust volume TE 5 9.08 ms Position Isocenter **Averages** Orientation Transversal Concatenations Rotation 0.00 deg Filter Prescan Normalize  $R \gg L$ 350 mm Coil elements HEA;HEP A >> P 263 mm Contrast 350 mm F >> H Non-sel. IR Magn. preparation Physio 1200 ms 1st Signal/Mode None 7.0 deg Flip angle Fat suppr. None Dark blood Off Water suppr. None Inline Averaging mode Long term Subtract Off Reconstruction Magnitude Std-Dev-Sag Off Measurements Std-Dev-Cor Off Multiple series Each measurement Std-Dev-Tra Off Std-Dev-Time Off Resolution MIP-Sag Off 256 Base resolution MIP-Cor Off Phase resolution 100 % MIP-Tra Off Slice resolution 100 % MIP-Time Off Phase partial Fourier Off Save original images On Slice partial Fourier Off Interpolation Off Sequence Introduction On PAT mode **GRAPPA** Dimension 3D Accel. factor PE Elliptical scanning Off Ref. lines PE 32 Asymmetric echo Off Accel. factor 3D Contrasts Matrix Coil Mode Auto (Triple) SIEMENS MAGNETOM TrioTim syngo MR B17 Bandwidth 1 651 Hz/Px Bandwidth 2 651 Hz/Px Bandwidth 3 651 Hz/Px Bandwidth 4 651 Hz/Px Bandwidth 5 651 Hz/Px Flow comp. 1 No Flow comp. 2 No Flow comp. 3 No Flow comp. 4 No Flow comp. 5 Nο Echo spacing 12.2 ms RF pulse type Fast Gradient mode Fast Excitation Non-sel. RF spoiling On Readout polarity Positive Bipolar Readout trajectory Add. scale factor 4.0 Integral Gradient spoiling Gradient moment factor 3.0 Siemens reconstruction On Save raw k-space data Off Averaging **RMS** GATE V01 R01 SIEMENS MAGNETOM TrioTim syngo MR B17 \\USER\A\\\A\ ER\\CUDIEU I\_03UU I \ULD\_UUDRE\_V I \\AA I E\_VU I\_RU I TA: 3:48 PAT: Off Voxel size: 3.8 ×3.8×3.5 mm Rel. SNR: 1.00 USER: ep2d complex Off Body **Properties HEP** On Prio Recon Off **HEA** On Before measurement Positioning mode After measurement FIX Load to viewer On Table position Н Table position 0 mmInline movie Off MSMA S - C - T Auto store images On Sagittal Load to stamp segments Off  $R \gg L$ Coronal Load images to graphic Off A >> Pseaments Transversal F >> H Auto open inline display Off Coil Combine Mode Adaptive Combine Auto Coil Select Start measurement without On Default further preparation Shim mode Standard Wait for user to start Off Adjust with body coil Off Start measurements single Confirm freq. adjustment Off Assume Silicone Off Routine Slice group 1 ? Ref. amplitude 1H 0.000 V Slices Adjustment Tolerance 33 Auto Adjust volume Dist. factor 30 % Position L1.9 A8.8 H38.5 Position L1.9 A8.8 H38.5 Orientation Orientation T > C-22.5 > S3.4 T > C-22.5 > S3.4 A >> P Rotation 0.00 deg Phase enc. dir. Rotation 0.00 deg  $R \gg L$ 240 mm A >> P Phase oversampling 240 mm 0 % 240 mm FoV read F>> H 150 mm FoV phase 100.0 % Physio Slice thickness 3.5 mm None 1st Signal/Mode TR 2000 ms 29 ms **BOLD** TE **Averages** Off GLM Statistics Concatenations Dynamic t-maps Off Filter None Starting ignore meas 0 Coil elements HEA;HEP Ignore after transition 0 Model transition states Off Contrast Temp. highpass filter Off MTC Off Threshold 4.00 Flip angle 75 deg Paradigm size 20 Fat sat. Fat suppr. Meas[1] Baseline Averaging mode Long term Meas[2] Baseline Reconstruction Magnitude Meas[3] Baseline Measurements Meas[4] Baseline 112 Delay in TR 0 ms Meas[5] Baseline Multiple series Off Meas[6] Baseline Meas[7] Baseline Resolution Meas[8] Baseline Base resolution 64 Meas[9] Baseline Phase resolution 100 % Meas[10] Baseline Phase partial Fourier Off Meas[11] Active Interpolation Off Meas[12] Active PAT mode Meas[13] Active None Meas[14] Active Matrix Coil Mode Triple Meas[15] Active Distortion Corr. Off Meas[16] Active Prescan Normalize Off Meas[17] Active Raw filter On Meas[18] Active Elliptical filter Off Meas[19] Active Hamming Off Meas[20] Active Motion correction Off Geometry Spatial filter Off Multi-slice mode Interleaved Ascending Series Sequence Introduction Special sat. None Bandwidth 2170 Hz/Px System 17/+ SIEMENS MAGNETOM TrioTim syngo MR B17 Free echo spacing Off Echo spacing 0.53 ms EPI factor 64 RF pulse type Normal Gradient mode GATE\_V01\_R02 SIEMENS MAGNETOM TrioTim syngo MR B17 TA: 3:48 PAT: Off Voxel size: 3.8 ×3.8×3.5 mm Rel. SNR: 1.00 USER: ep2d\_complex Body Off **Properties HEP** On Prio Recon Off **HEA** On Before measurement After measurement Positioning mode FIX Load to viewer Table position On Н Inline movie Off Table position 0 mm MSMA Auto store images S-C-T On Sagittal R >> L Load to stamp segments Off Load images to graphic Off Coronal A >> PTransversal F >> H segments Auto open inline display Off Coil Combine Mode Adaptive Combine Start measurement without On Auto Coil Select Default further preparation Shim mode Standard Wait for user to start Off Adjust with body coil Off Start measurements single Confirm freq. adjustment Off Routine Assume Silicone Off 0.000 V Slice group 1 ? Ref. amplitude 1H Adjustment Tolerance Slices 33 Auto Dist. factor Adjust volume 30 % Position L1.9 A8.8 H38.5 Position L1.9 A8.8 H38.5 Orientation T > C-22.5 > S3.4 Orientation T > C-22.5 > S3.4 0.00 deg Phase enc. dir. Rotation A >> P0.00 deg 240 mm Rotation  $R \gg L$ Phase oversampling 0 %  $A \gg P$ 240 mm FoV read 240 mm F >>> H 150 mm FoV phase 100.0 % Physio Slice thickness 3.5 mm 1st Signal/Mode None TR 2000 ms ΤE **BOLD** 29 ms **Averages GLM Statistics** Off Concatenations Dynamic t-maps Off Filter None Starting ignore meas 0 Coil elements HEA;HEP Ignore after transition 0 Model transition states Off Contrast Temp. highpass filter Off MTC Off Threshold 4.00 Flip angle 75 deg Paradigm size 20 Fat suppr. Fat sat. Baseline Meas[1] Meas[2] Long term Averaging mode Baseline Reconstruction Meas[3] Magnitude Baseline Measurements Meas[4] Baseline 112 Delay in TR 0 ms Meas[5] Baseline Multiple series Meas[6] Baseline Off Meas[7] Baseline Resolution Meas[8] Baseline Base resolution 64 Meas[9] Baseline Phase resolution 100 % Meas[10] Baseline Phase partial Fourier Off Meas[11] Active Interpolation Off Meas[12] Active Meas[13] PAT mode Active None Meas[14] Active Matrix Coil Mode Triple Meas[15] Active Off Distortion Corr. Meas[16] Active Prescan Normalize Off Meas[17] Active Raw filter On Active Meas[18] Elliptical filter Off Meas[19] Active Hamming Off Meas[20] Active Motion correction Off Geometry Spatial filter Off Multi-slice mode Interleaved Series Ascending Sequence Introduction Off Special sat. None 2170 Hz/Px Bandwidth System 19/+ SIEMENS MAGNETOM TrioTim syngo MR B17 Free echo spacing Off 0.53 ms Echo spacing EPI factor 64 RF pulse type Normal Gradient mode Fast GATE V01 **R03** SIEMENS MAGNETOM TrioTim syngo MR B17 Voxel size: 3.8 ×3.8×3.5 mm Rel. SNR: 1.00 TA: 3:48 PAT: Off USER: ep2d\_complex Body Off **Properties HEP** On Prio Recon Off **HEA** On Before measurement After measurement Positioning mode FIX On Table position Н Load to viewer Inline movie Off Table position 0 mm Auto store images **MSMA** S - C - T On Sagittal Load to stamp segments Off R >> L Load images to graphic Off Coronal A >> PTransversal segments F >> H Coil Combine Mode Adaptive Combine Auto open inline display Off Start measurement without Auto Coil Select On Default further preparation Shim mode Standard Wait for user to start Off Adjust with body coil Off Start measurements single Confirm freq. adjustment Off Routine Assume Silicone Off Slice group 1 ? Ref. amplitude 1H 0.000 V Adjustment Tolerance Slices 33 Auto Dist. factor 30 % Adjust volume Position L1.9 A8.8 H38.5 Position L1.9 A8.8 H38.5 T > C-22.5 > S3.4 Orientation Orientation T > C-22.5 > S3.4 A >> P Phase enc. dir. Rotation 0.00 deg Rotation 0.00 deg  $R \gg L$ 240 mm 240 mm Phase oversampling 0 %  $A \gg P$ FoV read 240 mm F >> H 150 mm FoV phase 100.0 % Physio Slice thickness 3.5 mm 1st Signal/Mode None 2000 ms TR ΤE 29 ms **BOLD Averages GLM Statistics** Off Concatenations Dynamic t-maps Off None Starting ignore meas Filter 0 Coil elements HEA;HEP Ignore after transition 0 Model transition states Off Contrast Temp. highpass filter Off Off MTC Threshold 4.00 75 deg Flip angle Paradigm size 20 Fat suppr. Fat sat. Meas[1] Baseline Meas[2] Averaging mode Baseline Long term Reconstruction Magnitude Meas[3] Baseline Measurements Meas[4] Baseline 112 Delay in TR 0 ms Meas[5] Baseline Multiple series Off Meas[6] Baseline Meas[7] Baseline Resolution Meas[8] Baseline Base resolution 64 Meas[9] Baseline Phase resolution 100 % Meas[10] Baseline Phase partial Fourier Off Meas[11] Active Interpolation Off Active Meas[12] Meas[13] PAT mode None Active Meas[14] Active Matrix Coil Mode Triple Meas[15] Active Distortion Corr. Off Meas[16] Active Prescan Normalize Off Meas[17] Active Raw filter On Meas[18] Active Elliptical filter Off Active Meas[19] Hamming Off Meas[20] Active Motion correction Off Geometry Spatial filter Off Multi-slice mode Interleaved Series Ascending Sequence Introduction Off Special sat. None Bandwidth 2170 Hz/Px System SIEMENS MAGNETOM TrioTim syngo MR B17 Free echo spacing Off 0.53 ms Echo spacing EPI factor 64 RF pulse type Normal Gradient mode Fast RSTpre\_V01 **R01** SIEMENS MAGNETOM TrioTim syngo MR B17 TA: 5:04 PAT: Off Voxel size: 3.8 ×3.8×3.5 mm Rel. SNR: 1.00 USER: ep2d\_complex Off Body **Properties HEP** On Prio Recon Off HEA On Before measurement After measurement Positioning mode FIX On Table position Load to viewer Н Table position Off Inline movie 0 mm Auto store images **MSMA** S - C - T On Load to stamp segments Sagittal  $R \gg L$ Off Coronal Load images to graphic Off A >> PF >> H segments Transversal Auto open inline display Off Coil Combine Mode Adaptive Combine Start measurement without On Auto Coil Select Default further preparation Shim mode Standard Wait for user to start Off Adjust with body coil Off Start measurements single Confirm freq. adjustment Off Routine Assume Silicone Off Slice group 1 ? Ref. amplitude 1H 0.000 V Adjustment Tolerance Slices 33 Auto Dist. factor Adjust volume 30 % L1.9 A8.8 H38.5 Position L1.9 A8.8 H38.5 Position Orientation T > C-22.5 > S3.4 Orientation T > C-22.5 > S3.4Phase enc. dir.  $A \gg P$ Rotation 0.00 deg Rotation 0.00 deg  $R \gg L$ 240 mm Phase oversampling 0 %  $A \gg P$ 240 mm FoV read 240 mm F >>> H 150 mm FoV phase 100.0 % Slice thickness 3.5 mm 1st Signal/Mode None 2000 ms TR ΤE 29 ms **BOLD Averages GLM Statistics** Off Concatenations Dynamic t-maps Off Filter None Starting ignore meas 0 Coil elements HEA;HEP Ignore after transition 0

Model transition states

Temp. highpass filter

Threshold

Meas[1]

Meas[2]

Meas[3]

Meas[4]

Meas[5]

Meas[6]

Meas[7]

Meas[8]

Meas[9]

Meas[10]

Meas[11]

Meas[12]

Meas[13]

Meas[14]

Meas[15]

Meas[16]

Meas[17]

Meas[18]

Meas[19]

Meas[20]

Sequence

SIEMENS MAGNETOM TrioTim syngo MR B17

SIEMENS MAGNETOM TrioTim syngo MR B17

TA: 3:08 PAT: 2 Voxel size: 1.1×1.1×1.5 mm Rel. SNR: 1.00 SIEMENS: tse

Normalize

B1 filter

Mode

Geometry

Series

System

Body

HEP

**HEA** 

**MSMA** 

Sagittal

Coronal

Transversal

Shim mode

Save uncombined

Auto Coil Select

Assume Silicone

Adjust volume

Position

Rotation

 $A \gg P$ 

 $R \gg L$ 

F>>H

Dark blood

Subtract

Inline

Resp. control

Std-Dev-Sag

Std-Dev-Cor

Std-Dev-Tra

MIP-Sag

MIP-Cor

MIP-Tra

Sequence

SIEMENS MAGNETOM TrioTim syngo MR B17

SIEMENS MAGNETOM TrioTim syngo MR B17

Special sat.

Positioning mode

Table position

Table position

System

Body

**HEP** 

**HEA** 

MSMA

Sagittal

Coronal

Transversal

Shim mode

Coil Combine Mode

Adjust with body coil

? Ref. amplitude 1H

Adjustment Tolerance

Confirm freq. adjustment

Auto Coil Select

Assume Silicone

Adjust volume

Position

Rotation

 $R \gg L$ 

 $A \gg P$ 

F >> H

Resp. control

Diffusion mode

Diff. weightings

Diff. weighted images

Average ADC maps

Individual ADC maps

Trace weighted images

b-value

FA maps

Mosaic

Tensor

Sequence

Noise level

Introduction

Bandwidth

EPI factor

10/+

Echo spacing

RF pulse type

Gradient mode

Free echo spacing

Diff. directions

1st Signal/Mode

Physio

Diff

Orientation

TA: 5:42 PAT: 2 Voxel size: 2.0×2.0×2.0 mm Rel. SNR: 1.00 SIEMENS: ep2d\_diff

7/+

MIP-Time

Introduction

Dimension

Save original images

Compensate T2 decay

Reduce Motion Sens.

Std-Dev-Time

1st Signal/Mode

Orientation

Coil Combine Mode

Adjust with body coil

? Ref. amplitude 1H

Adjustment Tolerance

Confirm freq. adjustment

Special sat.

Tim CT mode

Positioning mode

Table position

Table position

Raw filter

Elliptical filter

Multi-slice mode

Spatial filter

Introduction

Bandwidth

Motion correction

Paradigm size

Contrast

MTC

Flip angle

Fat suppr.

Averaging mode

Reconstruction

Measurements

Multiple series

Base resolution

Interpolation

PAT mode

Raw filter

Hamming

Geometry

Series

System

Special sat.

Elliptical filter

Multi-slice mode

Free echo spacing

Echo spacing

RF pulse type

Gradient mode

t2\_tse\_tra\_192

EPI factor

**Properties** 

Prio Recon

Before measurement

After measurement

Auto store images Load to stamp segments

further preparation

Wait for user to start

Start measurements

Slice group 1

Dist. factor

Orientation

Phase enc. dir.

Phase oversampling

Position

Rotation

FoV read

Averages

Filter

Contrast

MTC

Flip angle

Fat suppr.

Water suppr.

Restore magn.

Averaging mode

Reconstruction

Measurements

Multiple series

Base resolution

Trajectory

PAT mode

Interpolation

Accel. factor PE

Matrix Coil Mode

Reference scan mode

Ref. lines PE

Image Filter

Distortion Corr.

Unfiltered images

Prescan Normalize

Contrasts Bandwidth

Flow comp.

Define

dti\_35dir

Properties
Prio Recon

Allowed delay

Echo spacing

Turbo factor

RF pulse type

Gradient mode

Before measurement

After measurement

Auto store images

further preparation

Wait for user to start

Start measurements

Slice group 1

Dist. factor

Orientation

Phase enc. dir.

Phase oversampling

Position

Rotation

FoV read

**Averages** 

TR

ΤE

Filter

Contrast

MTC

Fat suppr.

FoV phase

Slice thickness

Concatenations

Coil elements

Magn. preparation

Averaging mode

Reconstruction

Multiple series

Base resolution

Phase resolution

Accel. factor PE

Matrix Coil Mode

Distortion Corr.

Multi-slice mode

Raw filter Elliptical filter

Hamming

Geometry

Series

Prescan Normalize

Reference scan mode

Interpolation

Ref. lines PE

PAT mode

Phase partial Fourier

Delay in TR

Resolution

Slices

Load to stamp segments

Load images to graphic

Auto open inline display

Start measurement without

Load to viewer

Inline movie

segments

Routine

Echo trains per slice

Phase resolution

Phase partial Fourier

Resolution

FoV phase

Slice thickness

Concatenations

Coil elements

Magn. preparation

Slices

Load images to graphic

Auto open inline display

Start measurement without

Load to viewer

Inline movie

segments

Routine

Phase resolution

Matrix Coil Mode

Prescan Normalize

Distortion Corr.

Phase partial Fourier

Delay in TR

Resolution

Off

75 deg

Fat sat.

150

0 ms

100 %

Off

Off

None

**Triple** 

Off

Off

On

Off

Off

Interleaved

Ascending

None

Off

64

Fast

Off

On

Off

On

Off

Off

Off

On

Off

single

120

0%

 $R \gg L$ 

12 %

220 mm

100.0 %

1.5 mm

77 ms

15500 ms

HEA;HEP

Off

None

None

None

Off

192

Off

26

Off

Off

Off

On

100 %

Cartesian

GRAPPA

Auto (Triple)

199 Hz/Px

Turbo factor

No

11

11

Off

On

Off

On

Off

Off

Off

On

Off

72

L2.9 A14.8 H9.4

Transversal

A >> P

0 %

0.00 deg

256 mm

100.0 %

2.0 mm

9000 ms

84 ms

None

Off

None

0 ms

Off

128

6/8

Off

32

Off

Off On

Off

Off

100 %

**GRAPPA** 

Auto (Triple)

Separate

Interleaved

Interleaved

Fat sat.

Long term

Magnitude

HEA;HEP

single

Fast

Normal

60 s

11 ms

Integrated

155 deg

Short term

Magnitude

Each measurement

Prescan Normalize, Elliptical

90.00 deg

L0.9 A32.1 H4.9

T > C-4.3 > S1.7

0.53 ms

Normal

Off

Long term

Magnitude

Off

Off

20

4.00

Baseline

Active

Off

Off

Off

Off

Off

Off

On

Inplane

Interleaved

Interleaved

None

Off

On

On

**REF** 

0 mm

S - C - T

 $R \gg I$ 

 $A \gg P$ 

F >> H

Default

Standard

Adaptive Combine

Off

Off

Off

Off

Auto

0.000 V

L0.9 A32.1 H4.9

T > C-4.3 > S1.7

90.00 deg

220 mm

220 mm

180 mm

None

Off

On

On

2D

Off

Off

None

Off

On

On

FIX

0 mm

S - C - T

 $R \gg L$ 

 $A \gg P$ 

F >> H

Default

Off

Off

Off

Auto

0.000 V

L2.9 A14.8 H9.4

Transversal

0.00 deg

256 mm

256 mm

144 mm

None

Off

Free

On

Off

Off

Off

Off

On

Off

40

35

Off

128

Fast

0.72 ms

Normal

1562 Hz/Px

800 s/mm

Standard

Adaptive Combine

Н

Η

2170 Hz/Px