

Index

A

ACC. *See* Anterior cingulate cortex (ACC)
AC-PC space, 25
Acquisition order, 8
Across-session alignment, 40
Activation likelihood estimation (ALE), 225, 226
Activation studies, 306
Adaptation, 178
Adenosine triphosphate (ATP), 109
ADHD. *See* Attention deficit/hyperactivity disorder (ADHD)
Advanced image analysis, 375–376
Affective disturbances, 211
Affective dysregulation, 314
Affective-motivational pathway, 320
Affective responsiveness, 204
Agoraphobia, 295
AKT1, 122
Alcohol dependency, 66, 357
Alcohol's neurotoxic effects, 361–362
ALE. *See* Activation likelihood estimation (ALE)
Alpha error, 10
Alternative hypothesis, 9
Alzheimer's dementia, 102
Alzheimer's disease (AD), 94, 108, 371
 diagnosis of, 383, 391, 404
 early-stage, 394
 familial, 400–402
 pathogenesis of, 405
Alzheimer's disease neuroimaging initiative (ADNI), 126–127, 383
Amisulpride, 239
Amygdala, 42, 53, 192–195, 198, 210, 279, 290, 292, 296, 315, 324–325, 358
Amygdala-hypothalamus-periaqueductal gray, 327
Amyloid, 402–403
 pathology, 380
Amyloid-cascade model, 381
Amyloid- β protein, 371
Analysis methods, 64–65
Analysis of variance (ANOVA), 12
ANCOVA. *See* Covariance analysis (ANCOVA)
Anisotropic diffusion, 78–79
Anorexia nervosa (AN), 341
ANOVA. *See* Analysis of variance (ANOVA)
Anterior cingulate, 68, 106, 197

Anterior cingulate cortex (ACC), 42, 43, 68, 69, 103, 106, 195, 218, 261, 279, 303, 315
Anterior commissure (AC), 24
Anterior insula, 204
Anterior PFC, 218
Anterior temporal cortex, 164
Anterograde amnesia, 226
Antipsychotic medication, 255–257
Antisocial behavior, 323
Antisocial personality disorder, 324
Anxiety, 106
 disorders, 42, 103, 289
Aplysia californica, 275
Apolipoprotein E (APOE4), 379, 389, 400, 402
Apparent diffusion coefficient, 78
APP gene, 379
AR(1), 19
Aripiprazole, 239
Arterial spin labeling, 6
Attention, 174–175
Attentional load theory, 200
Attention deficit/hyperactivity disorder (ADHD), 43, 66
Attention-modulating function, 195
Atypical neuroleptics, 240–242
Auditory cortex, 42, 161
Aversive facecue comparison task, 360
Axial diffusivity, 81

B

Backward masking, 201
Balanced designs, 30–31
Ballistocardiogram, 63
Balloon model, 50
Basal ganglia, 94, 196, 276
 volume, 257
Baseline, 6
Basic statistical concepts, 9–10
Basic tastes, 166
Bayes factors, 53
Bayesian framework, 30
Bayesian inversion scheme, 55
Bayesian parameter averaging, 56
Bayesian statistics, 48
BCG artefact, 63

- Beta weight, 12
 Between-subject, 6, 28
 Bilateral orbitofrontal cortex, 315
 Bilinear dynamics, 50
 Binge foods, 349
 Biomarkers, 56
 Bipolar disorder (BD), 53, 95, 103, 106, 109, 255, 303
 Blind, 179
 Block designs, 5
 Blood oxygenation level dependent (BOLD), 3, 60–61
 response, 6
 signal, 68
 Body dissatisfaction, 349
 BOLD-like response shapes, 16–17
 Bonferroni correction, 20
 Borderline personality disorder (BPD), 313
 Bottom-up, 158, 204, 220
 Bounding box, 25
 BPD. *See* Borderline personality disorder (BPD)
 Brain
 atrophy, 361
 imaging, 137
 mapping, 4
 networks, 66
 normalization, 24–27
 pong, 40
 stimulation techniques, 137–138
 Brainstem (raphe) area, 360
 Brodmann area (BA)
 1, 2, 3a, 3b, 161
 17, 161
 41, 161
 Brownian motion, 77–78
 Bulimia nervosa (BN), 341
- C**
 CACNA1C, 128
 CADPS2, 127
 Candidate gene variants, 120–122
 Cardiac pulse-related artefact, 63
 Cardiovascular risk, 381
 and lifestyle, 390–391
 Catechol-O-methyltransferase (COMT), 121, 267
 polymorphism, 242
 Cavum septum pellucidum, 329
 Central sulcus, 166
 Cerebellum, 197
 Cerebral blood flow, 6
 Cerebrospinal fluid (CSF), 373
 tau protein, 389
 Chemical shift imaging (CSI), 92
 pulse sequence, 92–93
 Chemotopic organization, 166
 Cholecystokinin tetrapeptide (CCK-4), 103, 295
 Choline (Cho), 110
 Chronic emptiness, 320
 Chronic pain, 36, 43
 Chronic tinnitus, 43
 Cingulate cortex, 250
 Citalopram, 105
 Classical conditioning, 205, 291
 Clinical TMS, 139–140
 Cocaine, 365–366
 Cochlea, 158
 Cochleotopic, 165
 Cognitive areas, 42–43
 Cognitive correlates, 219
 Cognitive empathy, 321
 Cognitive functions, 220
 Cognitive reappraisal, 317
 Cognitive reserve, 403–404
 Color-coded maps, 82
 Compensatory neuroadaptive processes, 359–360
 COMT. *See* Catechol-O-methyltransferase (COMT)
 Conjunction analysis, 16
 Contrast vector, 15
 Coplanar anatomical images, 22
 Coregistration, 22–23
 Corpus callosum (CC), 258, 304, 315, 385
 Correlated spectroscopy (COSY), 100
 Correlation analysis, 10–12
 Correlation coefficient, 11
 Correspondence problem, 24
 Cortex-based alignment, 27
 Cortex mesh representations, 26
 Cortical hubs, 402
 Cortical organization, 164–173
 Cortical pyramidal, 60
 Cortico-striato-thalamic loops, 297
 Corticothalamic pathology, 255
 COSY. *See* Correlated spectroscopy (COSY)
 Covariance analysis (ANCOVA), 12
 Cramer–Rao lower bound (CRLB), 97
 Creatine (Cr), 109–110
 CRP, 277
 CSF. *See* Cerebrospinal fluid (CSF)
 CSI. *See* Chemical shift imaging (CSI)
¹³C spectroscopy, 100–102
- D**
 dACC. *See* Dorsal anterior cingulate cortex (dACC)
 D-amino-acid oxidase activator (DAOA), 125
 DA/DOPA. *See* Dopamine (DA/DOPA)DCT.
 See Discrete cosine transform (DCT)
 Deconvolution analysis, 6, 16, 17
 Default mode network (DMN), 66, 70, 281,
 396, 398, 406
 Default network (DN), 227
 Delayed match-to-sample task, 224
 Dementia, 42, 94–95, 102–103, 108–109, 372
 Dendritic arborization, 275
 Dendritic retraction, 275
 Depression, 43, 103, 106
 Dermis, 158
 Design matrix, 13
 Developmental hypothesis, 329
 Dialectical behavior therapy, 316
 Diathesis-stress model, 128

- Diffusion, 77–79
 ellipsoid, 80
 kurtosis imaging, 85
- Diffusion tensor imaging (DTI), 77, 80, 257, 258, 281
- Diffusion-weighted imaging, 79
- Diffusivity increases, 386
- Dilution, 53
- Discrete cosine transform (DCT), 39
- Disgust, 196, 203
- Disorder-specific dysfunctions, 211
- Dissocial personality disorder, 324
- Dissociation, 318
- Distortion correction, 8–9
- Disturbed connectivity, 60
- Disturbed relatedness, 314
- DLPFC. *See* Dorsolateral prefrontal cortex (DLPFC)
- DMN. *See* Default mode network (DMN)
- DmPFC. *See* Dorsomedial prefrontal cortex (dmPFC)
- Donepezil, 70
- Dopamine (DA/DOPA), 236
 hypothesis, 120
 receptor sensitivity, 359
- Dopamine D2 receptor gene (DRD2), 122
- Dopaminergic neurotransmitter system, 358
- Dopaminergic reward system, 235, 241, 358–359
- Dorsal anterior cingulate cortex (dACC), 292
- Dorsal attention network, 67
- Dorsal auditory pathway, 162
- Dorsal pathway, 162
- Dorsal striatum, 358
- Dorsolateral prefrontal area, 197
- Dorsolateral prefrontal cortex (DLPFC), 139, 218, 366
- Dorsomedial prefrontal cortex (dmPFC), 293
- Double quantum coherence (DQC), 105, 107
- Downregulation, 42
- DRD₂ down regulation, 359
- D₂ receptor sensitivity, 359
- Dropouts, 9
- Drug dependence, 362–366
- DTI. *See* Diffusion tensor imaging (DTI)
- DTNBP1, 267
- Dynamic causal modelling, 47, 48
- Dysphoria, 320
- E**
- Early life stress, 281
- Early-stage AD, 394
- Eating disorder not otherwise specified (EDNOS), 341
- Eating disorders (EDs), 341
- EDSD. *See* European DTI Study in Dementia (EDSD)
- EEG. *See* Electroencephalography (EEG)
- EEG-fMRI, 60
- EEG-informed fMRI, 65–66
- Eigenvalues, 80
- Eigenvectors, 80
- Electroencephalography (EEG), 60
 artefacts, 63–64
 P300, 68
 recording, 62
- Electromyography (EMG), 42, 291
- Emotional distraction, 318
- Emotional learning, 205–210
- Emotionally evocative stimuli, 316
- Emotional regulation, 303–304
- Emotions, 191
 areas, 42
 processing, 263
 recognition, 204
- Empathy, 204
- Encoding, 207–210
- Endophenotypes, 118
- Endophinergic stimulation, 358
- β-Endorphins, 321
- Enhancing neuro imaging genetics through
 meta-analysis (ENIGMA), 126
- Entorhinal cortex, 210
- Environment, 128–129
- Episodic memory, 225
- Epistasis, 124–125
- Epithelium, 158
 e4 allele, 379
- EPSP. *See* Excitatory postsynaptic potential (EPSP)
- Error probability, 10
- European DTI Study in Dementia (EDSD), 393
- Event-related averaging, 16–17
- Event-related designs, 5
- Event-related potentials, 68
- Excitatory postsynaptic potential (EPSP), 60
- Excitotoxicity, 95, 102
- Executive functions, 220–222
- Expectation, 174
- Experience-dependent, 176–180
- Expertise, 179
- Explicit memory, 225
- Extinction, 291–292
- Extrastriate areas, 178
- Extrastriate visual area V4 (V4), 56
- F**
- Face-name pairs, 394
- Face-processing, 262
- Face-selective, 167
- Facial expressions, 198
- False discovery rate, 21
- Familial AD, 400–402
- Familial high-risk (FHR), 252, 253
- Family inference, 55
- Family-wise error, 20
- Fear, 196
 conditioning, 291–292
 extinction, 292
 generalization, 292
- Feedback, 39–40
- FEF. *See* Frontal eye fields (FEF)
- Ferromagnetic materials, 142
- Ferrous materials, 62
- FHR. *See* Familial high-risk (FHR)
- Fiber tractography, 388–389

- Fibromyalgia, 43
 Fick's first law, 77
 Filter dysfunction, 236
 First-episode patients, 257
 First-episode schizophrenia, 264
 Fixed-effects analysis, 27–29, 54–55
 Flat maps, 23
 Fluoxetine, 282
 Flupenthixol, 239
 Fluphenazine, 239
 fMRI. *See* Functional magnetic resonance imaging (fMRI)
 fMRI-based neurofeedback, 36
 fMRI-TMS, 140
 FOF. *See* Frontooccipital fasciculus (FOF)
 Food craving, 349
 Food stimuli, 342
 Fourier transform, 8
 Fractional anisotropy (FA), 81, 281, 385
 Free-water-corrected FA, 85
 Frontal and temporal lobes, 94
 Frontal cortex, 199, 358
 Frontal eye fields (FEF), 141, 147, 224
 Frontal lobe, 95, 258
 Frontal lobe gyri, 250
 Frontal operculum, 174
 Frontal-parietal networks, 70, 227
 Frontolimbic circuitry, 327–328
 Frontooccipital fasciculus (FOF), 281
 Frontopolar cortex, 261
 Fronto-striatal-temporal pathology, 254
 FSL software, 82
 F statistic, 15
 Functional connectivity, 41, 66
 Functional images, 22
 Functional localizer (experiments), 26
 Functional magnetic resonance imaging (fMRI),
 3, 137, 259, 281
 artefacts, 64
 GLM, 65
 Functional scan, 4
 Functional volume, 4
 Fusiform face area (FFA), 4, 178
 Fusiform gyrus, 203, 279
- G**
- G72, 267
 GABA. *See* Gamma-aminobutyric acid (GABA)
 Gambling, 366
 Gamma-aminobutyric acid (GABA), 95, 103–106, 360
 metabolism, 104
 structure, 104
 Gamma-band response, 66
 Gamma oscillations, 64
 Gaussian distribution, 50
 Gaussian kernels, 27
 Gaussian random field, 21
 Gender differences, 205
 Generalized anhedonia, 350
 Generalized anxiety disorder, 296
 Generalized least squares (GLS), 17–19, 30
 General linear model (GLM), 12–15, 27, 39
 assumptions, 17–18
 diagnostics, 15
 significance tests, 15–16
 Gene-set enrichment analysis (GSEA), 127
 Genes for schizophrenia, 266
 Genetic risk, 378–379
 Genome-wide association studies (GWAS), 122
 Genome-wide supported risk variants, 122–124
 Geometric distortions, 9
 Gibbs sampling, 55
 GLM. *See* General linear model (GLM)
 GLS. *See* Generalized least squares (GLS)
 Glucocorticoid-induced leucine zipper, 277
 Glucocorticoids (GC), 276
 Glutamate, 95, 102–103
 Glutamate chemical exchange saturation
 transfer (GLuCEST), 99–100
 Glutamate/glutamine (Glx), 95, 97, 351
 Glutathione (GSH), 106–109
 Glutathione metabolism, 107
 Glycogen synthase kinase-3 (GSK3), 278, 307
 Go/No-Go task, 318
 Gradient artefact, 63
 Gradient echo (GE) echoplanar
 imaging (EPI) sequence, 4, 8
 Graph-theoretical analysis, 389
 Grey matter, 254, 255, 305
 abnormalities, 250
 volumes, 178, 278, 315
 Group Bayes factor, 54
 Group inference, 54
 Group studies, 24
 Gustatory cortex, 166
 GWAS. *See* Genome-wide association studies (GWAS)
 Gyrus rectus, 276
- H**
- Habituation, 201
 Haemodynamic response function (HRF), 65
 Haemodynamics, 50
 states, 48
 Haloperidol, 239
 Haplotypes, 125–126
 Happiness, 196
 Head motion, 7
 Hemodynamic delay, 36
 Heroin/opiates, 365
 Heschl's gyrus, 161, 166
 Hierarchical processing, 162–164
 High-frequency gamma oscillations, 60
 High-frequency oscillations, 68
 High-frequency signal fluctuations, 8
 Hippocampus, 60, 70, 94, 195, 210, 276, 290,
 292, 315, 373
 hyperactivity, 397
 volumes, 276, 282
 5-HT2A receptors, 242

5-HT transporter (5-HTT), 278
 Hypercortisolism, 276
 Hypothalamic–pituitary–adrenal axis (HPA), 276

I

ICNs. *See* Intrinsic connectivity networks (ICNs)
 IL-6, 277
 Image acquisition artefact, 63
 Imagery, 175–176
 Imaging genetics, 118–120
 Impaired mentalization capabilities, 314
 Implicit memory, 225
 Impulse-control disorder, 366
 Increased mean diffusivity, 385
 Independent component analysis, 41
 Inferior colliculus, 159
 Inferior frontal gyrus, 42, 220
 Inferior parietal lobe, 224
 Inhibitory postsynaptic potential (IPSP), 60
 Instrumental aggression, 327
 Insula, 42, 178, 250, 292, 296, 304
 Insular cortex, 330
 Integration, 22–24
 Integration of EEG and fMRI, 65
 Intense emotions, 316
 states, 317
 Intermediate phenotypes, 118
 Internal capsule, 258, 281
 International affective picture system, 42
 Interpersonal disturbances, 321–323
 Intertrial interval, 6
 Intrinsic connectivity networks (ICNs), 398
 Inverse problem, 61
 IPSP. *See* Inhibitory postsynaptic potential (IPSP)
 Isotropic diffusion, 78

J

Joint ICA, 66

K

Ketamine, 102

L

Lack of empathy, 330
 Larger-than-expected reward, 358
 Lateral geniculate nucleus (LGN), 159, 174
 Lateral occipitotemporal gyrus, 349
 Lateral ventricles, 254
 LCModel, 97, 107
 Learning, 178–179
 theory, 37–38
 Left dorsal anterior midcingulate cortex, 204
 Left primary sensorimotor cortex, 145
 Left-sided amygdala, 193
 Lesion studies, 218–220
 LGN. *See* Lateral geniculate nucleus (LGN)

Limbic and paralimbic hyperreactivity, 316
 Limbic areas, 42
 Limbic cortex, 358
 Limbic–cortical–striatal–pallidal–thalamic
 circuits, 276
 Limbic stages, 373
 Linear and nonlinear drifts, 8
 Linear and sync interpolation, 7
 Linear time-invariant, 17
 Linear trend, 8
 Lithium, 307
 Local field potentials, 60
 Long-term memory, 210, 225
 Loss of sensory input, 179–180
 Low-resolution brain electromagnetic
 tomography (LORETA), 61

M

Magnetic resonance imaging (MRI), 79
 Magnetic resonance spectroscopy (MRS), 88
 Major depression, 95
 Major depressive disorder (MDD), 139, 250, 276
 Manual volumetry, 373–374
 MAOA. *See* Monoamine oxidase A (MAOA)
 Maternal–infant attachment, 281
 MCI. *See* Mild cognitive impairment (MCI)
 MDD. *See* Major depressive disorder (MDD)
 Mean diffusivity, 81
 Medial frontal region, 102
 Medial prefrontal cortex (mPFC), 106, 108, 290, 293
 Medial temporal lobe (MTL), 209, 373
 atrophy, 377
 MEGA-PRESS, 104–105, 107
 Memory
 paradigm, 404
 system, 209
 Mentalization-based therapy, 316
 Mesocorticolimbic reward system, 358
 Mesolimbic dopaminergic reward system, 236
 Mesolimbic system, 349
 MET. *See* Multifaceted Empathy Test (MET)
 Metabolite map, 93
 Met-enkephalins, 321
 Microstructure deficits, 361
 Middle frontal gyrus (MFG), 147
 Midsagittal insula, 161, 174
 Migration, 128
 Mild cognitive impairment (MCI), 94, 373
 Mirtazapine, 282
 Mixed effects, 27–29
 analysis, 29–30
 model, 30
 MNI template space, 24–26
 Model evidence, 53
 Model fitting, 50, 53
 Model inference, 53–54
 Moderating factors, 306–307
 Molecular genetics, 118
 Molecular pathology, 389–390

Monetary incentive delay (MID), 236
 Monoamine oxidase A (MAOA), 128
 Monte Carlo simulations, 21
 Mood, 196
 induction, 191
 Motion correction, 7
 Motivation system, 235
 Motor areas, 41
 Motor cortex, 140
 MPFC. *See* Medial prefrontal cortex (mPFC)
 MRI. *See* Magnetic resonance imaging (MRI)
 MTL. *See* Medial temporal lobe (MTL)
 Multifaceted Empathy Test (MET), 243, 322
 Multilevel summary statistics approach, 28
 Multiple comparisons, 9
 correction, 20–22
 problem, 20, 22
 Multiple correlation coefficient, 15
 Multiple regression analysis, 12
 Multi-subject predictors, 27
 Multi-subject voxel time courses, 27
 Multivariate analysis of variance, 32
 Multivariate pattern analysis, 31–32
 Multi-voxel pattern analysis, 40
 Myoinositol (mI), 94, 110–111, 351

N

NAA. *See* *N*-acetylaspartate (NAA)
 NAA/Cr, 95
N-acetylaspartate (NAA), 90–95, 351, 362
N-acetylaspartylglutamate, 90
 Naltrexone, 358
 Narcissistic personality disorder, 329–333
 N-back paradigm, 223
 N-back working memory, 121
 Negative symptoms, 235, 249
 Neocortical stages, 373
 Neural circuits, 41–43
 Neurocognitive dysfunctions, 255
 Neurodevelopmental deficit, 329
 Neurodevelopmental hypothesis, 259
 Neurodynamics, 48–49
 Neurofibrillary tangles, 379
 Neuroimaging phenotypes, 118
 Neuroleptics, 239–240
 Neurotoxic effects, 361
 Neutral faces, 262
 Nicotine, 68
N-methyl-D-aspartate (NMDA), 102
 receptors, 60, 360
 NMR. *See* Nuclear magnetic resonance (NMR)
 Noise fluctuations, 10
 Nonlinear DCM, 50
 Nonlinear trend, 8
 Non-substance-related Addiction, 366–367
 NRG1, 267
 Nuclear magnetic resonance (NMR), 88
 Nucleus accumbens, 205
 Null hypothesis, 9

O

Object-based attention, 174
 Obsessive compulsive disorder (OCD), 289, 297
 OCC, 105
 Occipital cortex, 106
 Occipital lobe, 94, 165
 Occipital lobe epilepsy (OLE), 105
 Occipitotemporal cortex (OTC), 167
 OCD. *See* Obsessive compulsive disorder (OCD)
 Ocular dominance, 177
 OFC gray matter atrophy, 326
 Olanzapine, 239
 OLE. *See* Occipital lobe epilepsy (OLE)
 Olfactory bulb, 159
 Olfactory nucleus, 162
 Olfactory tubercle, 358
 Omnibus effect, 15
 Operant conditioning, 38
 Operculum, 161
 Opioidergic neurotransmitter system, 358
 Optimal echo time, 97–98
 Orbitofrontal cortex, 174, 178, 218, 276
 Orbitomedial prefrontal cortex, 53
 Ordinary least squares, 17
 OTC. *See* Occipitotemporal cortex (OTC)

P

P300, 259
 PACC. *See* Perigenual anterior cingulate cortex (pACC)
 Painful stimulation, 319
 Pain processing, 319–321
 Pain-related areas, 204
 Pallidum, 296
 Panic attacks, 295
 Panic disorder, 106, 289, 295
 Parahippocampal gyrus, 201, 328
 Parahippocampal place area (PPA), 168
 Paralimbic structures, 328
 Parallel processing, 162
 Parameter inference, 53, 55
 Parkinson's disease, 38, 43
 Perception, 157, 394–395
 Perigenual anterior cingulate cortex (pACC), 128
 Perspective taking, 204
 PET. *See* Positron emission tomography (PET)
 PFC. *See* Prefrontal cortex (PFC)
 Phantom limb pain, 180
 Phonological memory, 224
 Physical exercise, 403–404
 Piriform cortex, 166, 174
 Plasticity, 180, 261
 Point-resolved spectroscopy (PRESS), 91
 Polymorphisms, 278
 Population, 9, 24, 29
 correlation coefficient, 11
 error values, 17
 Positive psychotic symptoms, 249
 Positive symptoms, 235
 Positron emission tomography (PET), 5

- Postcentral gyrus, 166, 250
 Posterior and parahippocampal cingulum, 385
 Posterior cingulate gyrus, 94, 95
 Posterior commissure (PC), 24
 Posterior piriform cortex, 162
 Posteromedial cortex, 397
 Post hoc sorting, 6
 Posttraumatic stress disorder (PTSD), 282, 289, 292–293
 PPA. *See* Parahippocampal place area (PPA)
 PPI. *See* Psychopathic Personality Inventory (PPI)
 Pre-coloring, 18
 Precuneus, 195
 Predementia stages, 383
 Predictor time course, 13
 Predictor variance-covariance matrix, 14
 Prefrontal areas, 42
 Prefrontal cortex (PFC), 60, 121, 195, 218, 303, 325–327
 Premature aging, 361
 Premotor cortex, 146
 Preprocessing, 4, 6–9
 Pre-whitening, 18
 Primary gustatory cortex, 161, 174
 Primary motor cortex, 42
 Primary olfactory cortex, 161
 Primary reward, 38
 Primary sensory cortices, 160
 Primary visual cortex, 176
 Prior densities, 50
 Prisoner's dilemma task, 326
 PRODH, 124
 Protective $\epsilon 2$ allele, 402
 Psychopathic Personality Inventory (PPI), 324
 Psychopathic traits, 323–324
 Psychostimulants, 365–366
 PTSD. *See* Posttraumatic stress disorder (PTSD)
 Pulvinar, 174
 Putamen, 279
- R**
- Radial diffusivity, 81
 Radio-frequency (RF) coil, 89
 Radio-frequency emissions, 62
 180° Radiofrequency pulse, 79
 Random effects, 27–29
 analysis, 28, 54–55
 Rapid event-related designs, 6, 16
 Rare high-risk variants, 124
 Reactive aggression, 327
 Reactive oxygen species (ROS), 106
 Real-time processing, 38–39
 Recognition, 198
 Regions of interest (ROIs), 4, 31, 83
 Regulation of emotions, 316–319
 Repetition suppression, 178
 Response inhibition, 220
 Resting-state fMRI, 397–400
 Resting-state networks, 398
 Resting-state studies, 306
 Retina, 158
 Retinotopic maps, 164
 Retrieval, 207–210
 Reward prediction error, 236
 Reward system, 235–237
 Rigid bodies, 7
 Risk and resilience, 378–383
 Risk variants, 122
 Risperidone, 239
 ROIs. *See* Regions of interest (ROIs)
 ROS. *See* Reactive oxygen species (ROS)
 Rostral entorhinal cortex, 162
 Rostrolateral prefrontal cortex, 42
 Rotations, 7, 22
- S**
- Sad mood, 196
 Safety issues, 62
 Scene-selective, 167
 Schizophrenia, 42, 56, 60, 68, 94, 102, 105–106, 108, 117, 211, 235–237, 249
 SCR. *See* Skin conductance response (SCR)
 Secondary auditory cortices, 176
 Secondary somatosensory cortex, 166
 Selective attention, 220
 Selective serotonin reuptake inhibitor (SSRI), 298
 sertraline, 282
 Self-focused processes, 396
 Self-injurious behavior, 314
 Self-portraits, 350
 Self-regulation training, 42
 Self-regulatory circuit, 350
 Sensory areas, 42
 Sensory association areas, 226
 Sensory-discriminative system, 320
 Sensory surfaces, 158–159
 Separate set of beta values, 28
 Serial correlations, 17–19
 Serotonergic 5-HT₃-receptors, 359
 Serotonergic system, 242
 Serotonin, 236
 Serotonin (5-HT), 360
 Serotonin-norepinephrine reuptake inhibitor (SNRI)
 venlafaxine, 298
 Shimmed, 7
 Signal-to-noise ratio, 8
 Significance level, 10
 Single models, 53
 Single nucleotide polymorphisms (SNPs), 118, 278
 Single photon emission computed tomography (SPECT), 360
 Single-subject, 9–21
 Single voxel MRS, 97
 Single voxel spectroscopy (SVS), 90
 Skin conductance response (SCR), 291
 SLC6A4, 128
 SLF. *See* Superior longitudinal fasciculus (SLF)
 Slice scan time correction, 7–8
 Slow event-related designs, 6, 16
 Slow T1-weighted MR sequences, 5

- Social anxiety, 350
 Social anxiety disorder, 289, 296
 Social cognition, 263, 265
 Social interactions, 321
 Social isolation, 350
 Social stress, 275
 Somatosensory cortices, 161
 Somatosensory homunculus, 166
 Somatotopic maps, 166
 Source localisation, 65
 Spatial normalization, 26
 Spatial smoothing, 8
 Spatial transformation matrix, 22
 Specific phobias, 289, 296
 SPECT. *See* Single photon emission computed tomography (SPECT)
 Spectroscopy, 94
 SPL. *See* Superior parietal lobule (SPL)
 SSRI. *See* Selective serotonin reuptake inhibitor (SSRI)
 Standard error, 10
 Static and time-varying magnetic, 62
 Statistical group analysis, 27–31
 Statistical maps, 9, 19–20, 23–24
 Statistical threshold, 19
 Stejskal-Tanner sequence, 79
 Stepping stone sampling, 64
 Stimulated echo acquisition mode (STEAM), 92
 Stimulation protocol, 4
 Stored information, 226
 Striatum, 236, 297
 Stroke, 36, 79
 Stroop paradigm, 220, 318
 Structural abnormalities, 253
 Subcortical-limbic areas, 195
 Subcortical-limbic emotion network, 201
 Subcortical structures, 159–160
 Substance/alcohol dependency, 358–362
 Substance misuse, 42
 Substantia nigra, 358
 Superior colliculus, 159, 174
 Superior longitudinal fasciculus (SLF), 258, 281
 Superior parietal lobule (SPL), 147
 Superior temporal gyrus, 178
 Supplementary motor area, 42, 43
 Support vector machines, 32, 40
 Susceptibility genes, 389
 SVS. *See* Single voxel spectroscopy (SVS)
 Synaesthetes, 56
- T**
 Talairach space, 24
 Talairach transformation, 24
 Task-based fMRI, 393–394
 Task-positive network, 400
 Task-related deactivation, 396–397
 Tau protein, 389
 TCA cycle, 101, 104
 TE-averaged PRESS, 98–99
 Temporal filtering, 8
 Temporal high-pass filter, 8
 Temporal lobe, 94, 95
 Temporal shift, 7
 Temporal smoothing, 8
 TE STEAM, 98
 Thalamic nuclei, 159
 Thalamus, 94, 159, 250, 292
 Theory of mind (ToM), 263
 Therapy response, 282–283
 Theta/beta ratio, 43
 Theta hippocampus, 60
 Third ventricle, 254
 3D Gaussian distribution, 78
 3D Gaussian kernel, 8
 3D maps, 65
 3D motion correction, 38
 3D positions, 22
 3D renderings, 22
 3DSlicer, 83
 TMS/fMRI, 142, 145
 Tolerance, 362
 ToM. *See* Theory of mind (ToM)
 Tongue, 158
 Tonotopic maps, 165
 Top-down, 158, 173–176, 204, 220
 Topographic maps, 158, 164
 Trace, 81
 Tract-based spatial statistics, 82
 Tractography, 80, 83
 Transcranial magnetic stimulation (TMS), 138
 coil, 140, 142
 Transentorhinal stages, 373
 Translations, 7, 22
 T1-relaxation, 79
 T2-relaxation, 79
 Tryptophan, 276
 T-test, 10–12
 2D JPRESS, 105
 Two-dimensional MRS (2D MRS), 100, 108
 Two-factor models, 316, 318
 Two-level model, 30
 Two-level summary statistics, 29
 Type 1 error, 10
 Type 2 error or beta error, 10
 Typical and atypical neuroleptics, 239
- U**
 Ultrahigh-risk (UHR), 253, 259
 Ultrashort echo time, 98
 Uncertainty of effects, 9
 Uncinate fasciculus, 53, 258
 Unconscious perception, 201
 Urban upbringing, 128
- V**
 Valine (VAL), 243
 Val66Met, 278
 Val158Met, 121

- Variance, 10
 - Variational Laplace (VL), 50
 - algorithm, 53
 - VBM. *See* Voxel-based morphometry (VBM)
 - Velocardiofacial or 22q11 syndrome, 124
 - Ventral auditory pathway, 162
 - Ventral pathway, 162
 - Ventral premotor cortex, 42
 - Ventral striatum, 236, 239
 - Ventral tegmental area, 358
 - Ventricular enlargement, 361
 - Ventrolateral PFC, 218
 - Ventromedial prefrontal cortex (vmPFC), 292, 293
 - VGWAS. *See* Voxel-wise GWAS (vGWAS)
 - Visual category-selective regions, 167
 - Visual cortex, 42, 140
 - Visual processing, 224
 - VmPFC. *See* Ventromedial prefrontal cortex (vmPFC)
 - Vocalizations, 167
 - Volume changes, 255
 - Volume TR, 4
 - Voxel, 4
 - time course, 12
 - Voxel-based morphometry (VBM), 374
 - Voxel-wise GWAS (vGWAS), 127
- W**
- White matter, 257, 277, 281, 304–305, 315
 - pathology, 385–386
 - tractography-derived connectivity, 389
 - volume, 361
 - White matter hyperintensities (WMH), 304
 - Whole-brain analysis, 4
 - Whole-brain data, 27
 - Whole-brain group analysis, 31
 - Whole-brain maps, 39
 - Whole-brain NAA (WBNA), 94
 - Within subjects, 6
 - Working memory (WM), 220, 223, 260–261, 318
 - impairment, 264
- Z**
- ZNF804A, 128