NTXHACKATHON22

Type	Resource link	Comment
NTX		
Awesome BCI	https://github.com/NeuroTechX/awesome-bci	
NTX EEG Notebooks	https://neurotechx.github.io/eeg-notebooks/	
NTX MOABB - Mother of All BCI Benchmarks	https://moabb.neurotechx.com/docs/	
NeuroTech Microcredential Program	https://neuroscience.queensu.ca/academic/microcredentials	
The NeuroTechX Education Platform	https://neurotechedu.com/	
NeuroTechX Webinars	https://neurotechx.com/webinars/	
NeuroTechX Content Lab (on Medium)	https://medium.com/neurotechx	
The NeuroTech Primer (Book)	https://neurotechx.com/primer/	
Resources		
Name	Link	Comment
NeuroStars	https://neurostars.org	
NITRC	https://nitrc.org	NeuroImaging Tools and Resource Collaboratory
Neuroscience Gateway	https://nsgportal.org	San Diego Supercomputer portal with Neuroscience appl
Neurodesk	https://neurodesk.org	Full featured Neurodesktop
Brainlife	https://brainlife.io	
Canadian Open Neuroscience Platform	https://conp.ca	
Neurohub	https://neurohub.ca	Canadian Computational Resource
ModelDB	https://senselab.med.yale.edu/ModelDB/	
eBrains	https://ebrains.eu/	
Brainhack Cloud	https://brainhack.org/brainhack_cloud	Cloud-backend for Neurodesk from brainhack
Neurodebian	https://neuro.debian.org	Neuroscience applications for Debian based GNU/Linux
Neurofedora	https://neuro.fedoraproject.org	Neuroscience applications for Fedora based GNU/Linux
Overview of MNE Tools	https://mne.tools/stable/install/mne_tools_suite.html	An overview of the MNE Ecosystem
ReproNim	https://www.repronim.org/	
eBrains HealthDataCloud	https://ebrains.eu/news/ebrains-healthdatacloud-tackling-the-sensitive-d	
Neurorobotics Platform	https://neurorobotics.net	
ENIGMA-Brainage model	https://photon-ai.com/enigma_brainage	
Tools		
Name	Link	Comment
Datalad	https://datalad.org	Keep code, data, containers under control with git an
Brainflow	https://brainflow.org	Open source acquisition and processing library
PsychoPy	https://psychopy.org	Experimental control in Python
Timeflux	https://timeflux.io	Acquisition and real-time processing
Scikit-Learn	https://scikit-learn.org/stable/index.html	Machine learning toolbox

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Type	Resource link	Comment
MNE-Python	https://mne.tools/stable/index.html	MNE Python - Analysis tools
MNE-BIDS	https://mne.tools/mne-bids/stable/index.html	
MNELAB	https://mnelab.readthedocs.io/en/latest/	EEG GUI Viewer
MNE-NIRS	https://mne.tools/mne-nirs/stable/index.html	
Braindecode	https://braindecode.org	Braindecode
fooof	https://github.com/fooof-tools/fooof	Fitting oscillations & one over f
neurodsp	https://github.com/neurodsp-tools/neurodsp	Digital signal processing algorithms
end	https://emd.readthedocs.io/en/stable/	
SimNIBS	https://simnibs.github.io/simnibs/build/html/index.html	
nwb	https://nwb.org	Neurodata Without Borders
lfpy	https://lfpy.readthedocs.io/en/latest/readme.html	
The Virtual Brain	https://www.thevirtualbrain.org/tvb/zwei	
neurolib	https://caglorithm.github.io/notebooks/neurolib-intro/	
BrainStorm	https://neuroimage.usc.edu/brainstorm/Introduction	
EEGLAB	https://sccn.ucsd.edu/eeglab/index.php	MATLAB Toolbox for ERP/ERSP Analysis
FieldTrip	https://www.fieldtriptoolbox.org/	MATLAB Toolbox for ERP/ERSP Analysis
PyGaze	https://www.pygaze.org	https://github.com/ardkastrati/EEGEyeNet
PyRiemann	https://pyriemann.readthedocs.io/en/latest/	Riemannian geometry for bio signal machine learning
autoreject	https://autoreject.github.io/stable/index.html#	Automated rejection tool
systole	https://embodied-computation-group.github.io/systole/#	ECG processing tool
LUNA	https://zzz.bwh.harvard.edu/luna/	Sleep scoring software
EDF Browser	https://www.teuniz.net/edfbrowser/	Cross-platform GUI Viewer
MNECPP	https://mne-cpp.github.io	Qt GUI tools for acquisition and realtime processing
OpenViBE	http://openvibe.inria.fr/	Create BCI through visual programming (signal acquisi
Connectome Mapper 3	https://connectome-mapper-3.readthedocs.io/en/latest/	

Gits		
Name	Link	Comment
Neuromatch Academy	https://github.com/NeuromatchAcademy	course to start up in Neural Data Analysis
EEGEdu	https://github.com/kylemath/EEGEdu	
PyMNE.jl	https://github.com/beacon-biosignals/PyMNE.jl	
EDF.jl	https://github.com/beacon-biosignals/EDF.jl	
MEEG ML Benchmarks	https://github.com/meeg-ml-benchmarks/meeg-brain-age-benchmark-paper	MEEG Brain Age prediction benchmarks from Resting EEG
IBM Seizure Pipeline	https://github.com/IBM/seizure-type-classification-tuh	
MNE BIOMAG 2016 Group Analysis	https://github.com/mne-tools/mne-biomag-group-demo	Example Group Analysis of MEG Dataset
DeepEEG	https://github.com/kylemath/DeepEEG	Tensorflow DL of EEG-notebooks data
BrainPad	https://github.com/CrisSherban/BrainPad	

Type	Resource link	Comment
wav2vec	https://github.com/facebookresearch/fairseq/tree/main/examples/wav2vec	
Brains at Play	https://github.com/brainsatplay	Public biomedical infrastructure on the Open Web.
Timeflux	https://github.com/timeflux/demos	End-to-end BCI demos with code
EEG-Transformer	https://github.com/anranknight/EEG-Transformer	
EEG Synth	https://github.com/eegsynth/eegsynth	
NeuroIDSS EEG GAN Audio Video	https://github.com/neuroidss/EEG-GAN-audio-video	
HyPyP	https://github.com/ppsp-team/HyPyP	Hyperscanning analysis toolbox
Rhythms of Relating	https://github.com/RhythmsOfRelating/HybridHarmony	Hyperscanning acquisition toolbox
Fastball	https://osf.io/r5tns/#!	
PsychRNN	https://psychrnn.readthedocs.io/en/latest/	
PyDDM	https://github.com/mwshinn/PyDDM	
NeuroMaps	https://github.com/netneurolab/neuromaps	
Diffusion Brain	https://huggingface.co/spaces/Warvito/diffusion_brain	
DiffRoll	https://sony.github.io/DiffRoll/	
COINSTAC	https://github.com/trendscenter/coinstac	
Tutorials		
Name	Link	Comment
Methods for Analyzing Neural Oscillations and Ap	https://github.com/voytekresearch/spr2022	
Neurotech Challenge	https://neurotech-challenge.com/	Use eeg-notebooks to collect data from yourself and c
ERP Core N400 preprocessing in MNE-Python	https://msilvestrin.me/post/n400_1/	
ERP Core processing with mne-bids-pipeline	https://mne.tools/mne-bids-pipeline/examples/ERP_CORE.html	
Download NSRR data directly into R	https://sleepdata.org/blog/2019/03/download-from-the-nsrr-directly-throu	
PsychoPy experiments	https://workshops.psychopy.org/tutorials/index.html	
Neuromatch Academy CompNeuro Tutorials	https://compneuro.neuromatch.io/tutorials/intro.html	
OpenViBE Workshop	http://openvibe.inria.fr/openvibe-tutorial-nec22/	Presentation and examples for creating a BCI applicat
ICIBCI - Opensource DIY BCI	https://icibici.github.io/site/	
The Neurotech Challenge Series	https://neurotech-challenge.com/phase1-eegnb/	
NeuroDSP MNE Tutorial	https://neurodsp-tools.github.io/neurodsp/auto_examples/plot_mne_example	Using NeuroDSP with MNE Data
ONNX - Tensorflow Training	https://brainflow.org/2022-09-08-onnx-tf/	
Braindecode Tutorials	https://braindecode.org/stable/auto_examples/index.html	
Unity & LSL	http://jmladeno.net/index.php/2017/12/01/sync-data-from-unity-vr-and-phy	Connect physiology to Unity through LSL
Godot, LSL, Python and Raspberry	https://labs.ullo.fr/tutorials/python-and-godot-engine-on-a-raspberry-pi	Use an opensource game engine on the Raspberry Pi to
NeuroTech Crash Course	https://www.youtube.com/playlist?list=PLmVSBg8arMyWmZNuN4Pt6uksPMx5Ovg_W	Youtube playlist that covers a quick course for under
Sinergia Connectomics Summer School	https://sinergia-connectomics-summerschool-2021.github.io/scss21-trainin	
Knowledge		

Type	Resource link	Comment
Name	Link	Comment
BCI wiki	https://bciwiki.org/main.php	
The Turing Way - Data Science Handbook	https://www.turing.ac.uk/research/research-projects/turing-way	Community developed data science best practices handbook
Good Research Code book	https://goodresearch.dev/_static/book.pdf	
Michael X Cohen	https://www.mikexcohen.com/	
Mini-ERP bootcamp	https://erpinfo.org	Tools and course materials
G.Tec Weekly Webinars	https://www.gtec.at/product/academy/	Academy G.tec
G.Tec Spring School	https://www.gtec.at/spring-school-2022/	available on YouTube
The Pioneers of EEG	https://brainclinics.com/pioneers-of-the-eeg/	Videos detailing the historical pioneers of EEG
Brainclinics Insights	https://brainclinics.com/insights-publishing/	
Brainclinics Resources	https://brainclinics.com/resources/	History of EEG
Brainbox Initiative Conference	https://brainbox-initiative.com/conference/2022	
NIRx Webinars	https://nirx.net/webinars	
Artinis FNIRS	https://www.artinis.com/blogpost-all/2021/fnirs-analysis-toolbox-series-	
Brain Products Webinars	https://www.brainproducts.com/support-resources/category/resource-type/w	
ANT Neuro Events	https://www.ant-neuro.com/events	
Blackrock Neuro Events	https://blackrockneurotech.com/2022-events/	
Brain Mind Mindmap	https://brainmind.org/bci	Mind map of BCI technologies
Neurafutures database	https://www.neurafutures.com/database/	Pop culture database about braincomputer interfaces
Cody Randall MD with Techforpsysch	https://www.youtube.com/c/Techforpsychinnovations	Consumer neurodevices reviews
The Quantified Scientist	https://www.youtube.com/c/TheQuantifiedScientist	Comparison of consumer devices vs scientific devices
Data Resources		
Name	Link	Comment
Neuromatch Academy CompNeuro Datasets	https://compneuro.neuromatch.io/projects/docs/datasets_overview.html	
DANDI Archive	https://dandiarchive.org/	BRAIN Initiative sponsored data repository
NEMAR Data Resource	https://nemar.org/	NEMAR, the NeuroElectroMagnetic data Archive and tools Resource
OpenNeuro	https://openneuro.org/	A free and open platform for validating and sharing E
ERP Core	https://osf.io/thsqg/	Multiple ERP experiments collected from the same indi
NIMH Data Archive	https://nda.nih.gov	
Max Planck Institute Leipzig Mind-Body Dataset	https://fcon_1000.projects.nitrc.org/indi/retro/MPI_LEMON.html	
Child Mind Institute Healthy Brain Network	https://fcon_1000.projects.nitrc.org/indi/cmi_healthy_brain_network/	Multimodal Neuroimaging dataset
TUH EEG Corpus	https://isip.piconepress.com/projects/tuh_eeg/index.shtml	Temple University Hospital EEG Corpus
OBI Brain-CODE	https://www.braincode.ca/	OBI's secure neuroinformatics platform for data manag
Cuban Human Brain Mapping Project	https://portal.conp.ca/dataset?id=projects/CHBMP	
Cambridge Centre for Ageing and Neuroscience	https://www.cam-can.org/	

Type	Resource link	Comment
Open MEG Archive	https://www.mcgill.ca/bic/neuroinformatics/omega	
National Sleep Research Resource (NSRR)	https://sleepdata.org	Repository of polysomnography data
Brainclinics TDBRAIN Challenge	https://brainclinics.com/tdbrain-challenge/	Two-Decades Brainclinics Archive for Insights in Neur
Synapse TDBRAIN Resource	https://www.synapse.org/#!Synapse:syn25671079/wiki/610278	
Multimodal Language Dataset	https://osf.io/ag3kj/	Magnetoencephalography recordings of healthy voluntee
Buzsaki Lab Datasets	https://buzsakilab.nyumc.org/datasets/	
Neural Latents Benchmark	https://neurallatents.github.io/	
EEGEyeNet Benchmark	https://github.com/ardkastrati/EEGEyeNet	EEGEyeNet is a benchmark to evaluate ET prediction ba
Restoring Active Memory	https://memory.psych.upenn.edu/RAM	

Courseware		
Name	Link	Comment
Neuromatch Academy CompNeuro Course	https://compneuro.neuromatch.io/tutorials/intro.html	
Berkeley Neurotech Course	https://github.com/neurotech-berkeley/neurotech-course	
NeuroTech Course	https://www.neurotechcourse.org/online-curriculum	
NeuroTechX Learning Resource	http://learn.neurotechedu.com/	
FSL Course	https://open.win.ox.ac.uk/pages/fslcourse/website/	
ABCD ReproNim Course	https://www.abcd-repronim.org/	
Machine Learning Tokyo AI Curriculum	https://github.com/Machine-Learning-Tokyo/AI_Curriculum	
The BCI Guys	https://www.bciguys.com/course	Foundations of Neurotech Course

References		
Topic	Link	Comment
An open resource for transdiagnostic research in	https://www.nature.com/articles/sdata2017181	
Resting EEG brain age prediction	https://www.sciencedirect.com/science/article/pii/S105381192200636X	
Stability of Spectral Estimation in Resting Stat	https://www.sciencedirect.com/science/article/pii/S1053811921010946	
A benchmark for prediction of psychiatric multim	https://www.sciencedirect.com/science/article/pii/S1053811922004670	
EEG-based age-prediction models as stable and he	https://onlinelibrary.wiley.com/doi/ftr/10.1002/hbm.24501	
Population heterogeneity in clinical cohorts aff	https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3001627	
Brain age prediction using fMRI network coupling	https://www.sciencedirect.com/science/article/pii/S221315822100365X	
An analysis-ready and quality controlled resourc	https://www.nature.com/articles/s41597-022-01695-7	
NEMAR	https://arxiv.org/abs/2203.02568	
Generative Models of Brain Dynamics: A Review	https://arxiv.org/abs/2112.12147	

Type	Resource link	Comment
Crowdsourced EEG Experiments	https://www.biorxiv.org/content/10.1101/2022.02.09.479644v1.full	
Comparison of Medical and Consumer Wireless EEG	https://www.frontiersin.org/articles/10.3389/fnhum.2017.00398/full	
Low cost brain computer interface for everday us	https://pubmed.ncbi.nlm.nih.gov/34586477/	
A Ride in the Park	https://www.sciencedirect.com/science/article/abs/pii/S0167876020300556	
Bioelectronic Medicine	https://www.cell.com/neuron/fulltext/S0896-6273(22)00808-X	
Neuralink Whitepaper		
The Argo	https://www.biorxiv.org/content/10.1101/2020.07.17.209403v1	
Neural Co-Processors for Restoring Brain Functio	https://arxiv.org/abs/2210.11478v1	
MOABB: trustworthy algorithm benchmarking for BC	https://iopscience.iop.org/article/10.1088/1741-2552/aadea0	
OMEGA	https://www.sciencedirect.com/science/article/abs/pii/S1053811915003183	
Cam-CAN	https://www.sciencedirect.com/science/article/pii/S1053811915008150	
LEMON		
Brain age from the electroencephalogram of sleep	https://pubmed.ncbi.nlm.nih.gov/30448611/	
Excess brain age in the sleep electroencephalogr	https://pubmed.ncbi.nlm.nih.gov/31932049/	
Night-to-night variability of sleep electroencep	https://pubmed.ncbi.nlm.nih.gov/33248430/	
Efficacy of Single-Channel EEG: A Propitious App	https://www.frontiersin.org/articles/10.3389/fpubh.2022.839838/full	
Beacon Biosignals	https://beacon.bio/	