

NALYSIS 0.1

Nalysis is a scientific game-changing, technology-disrupting, platform that will forever change the fields of psychiatry, psychology and medicine of higher-mental functions.

Nalysis is based on the ideas developed by “**NeuroAnalysis**” and “**Clinical Brain Profiling CBP**” (1,2,3)

The Need

Effective new diagnosis and treatments for Dementia, Depression, Schizophrenia and Personality-Disorders,

Innovation

Nalysis is a novel technology platform integrating diagnosis and treatment like never before, based on the assumptions that mental disorders can be reformulated as brain disorders, and thus effectively treated, with innovative diagnostic and therapeutic approaches. (1,2,3)

NALYSIS Infrastructure



User Clinician



Big-data



User



Tele-Psychiatry



Psychotherapy



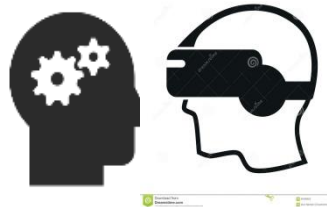
User Cyber + Wearables



Consumer EEG
Wearables



Neurofeedback

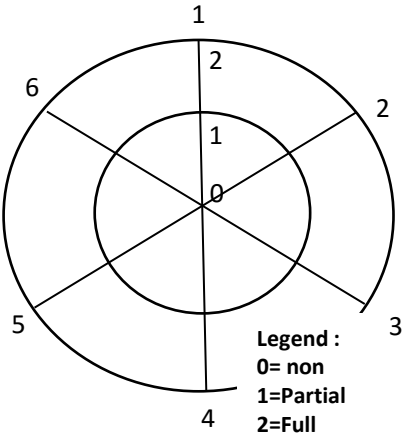


Cognitive Training

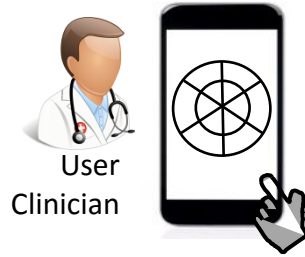


Consumer tDCS
Wearables

The platform uses a 6-dimentional framework to map Clinical Brain Profiling

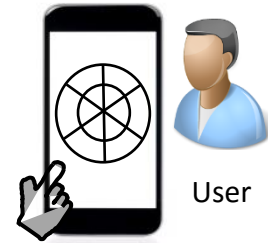
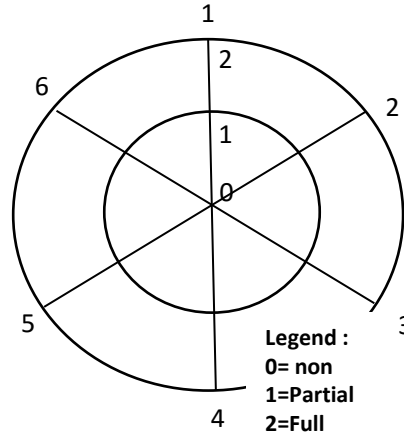


The platform uses a 6-dimensional framework to map users clinicians and cyber-wearable inputs



User
Clinician

User clinician rates his
objective (signs) assessments



User

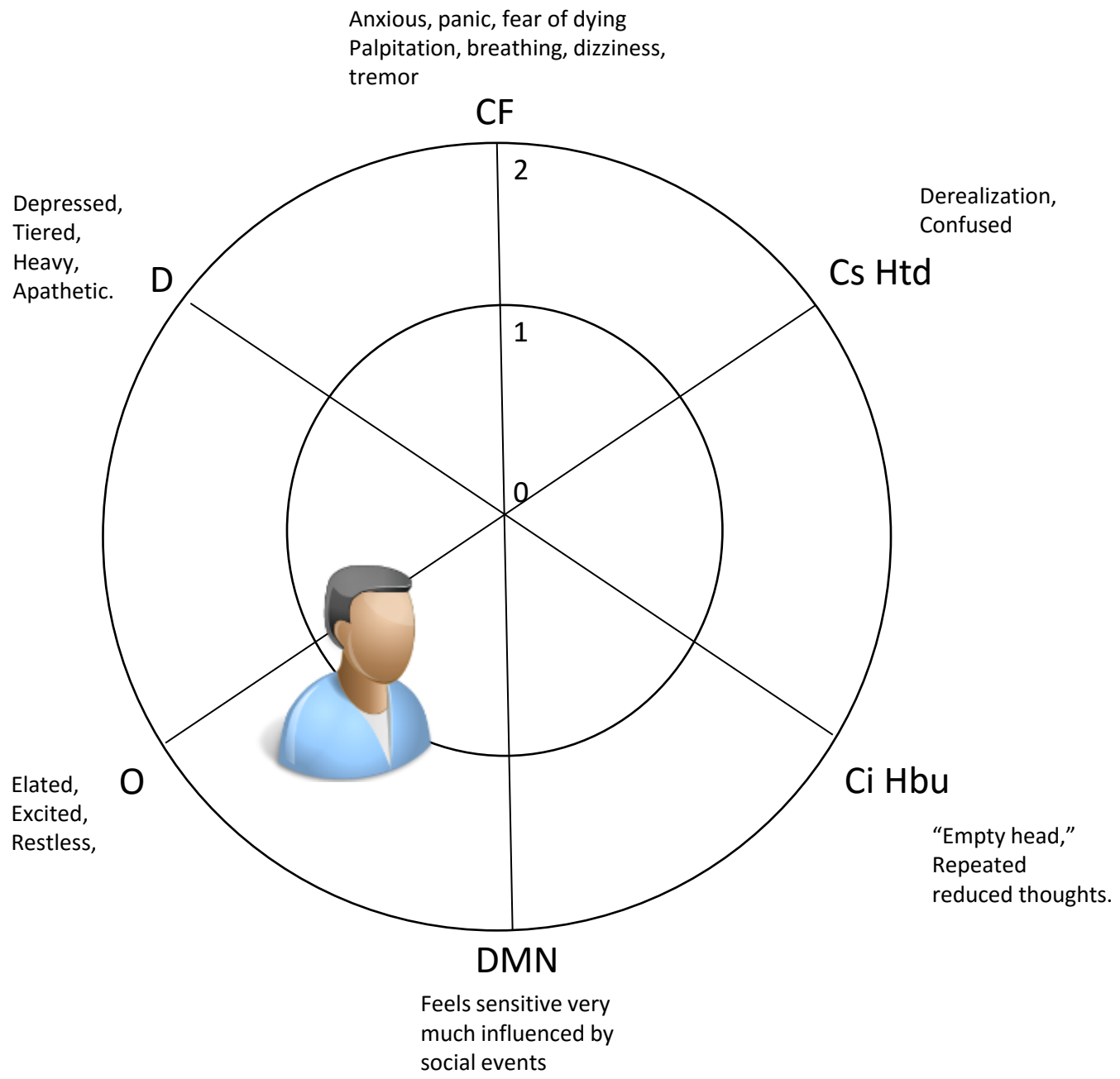
User rates his subjective
complaints (symptoms)



User Cyber + Wearables

Collected phenomenology
from cyber activity and sensors
rates the dimensions

6-D of Subjective Experience by the Patient



Legend :
 0= non
 1=Partial
 2=Full

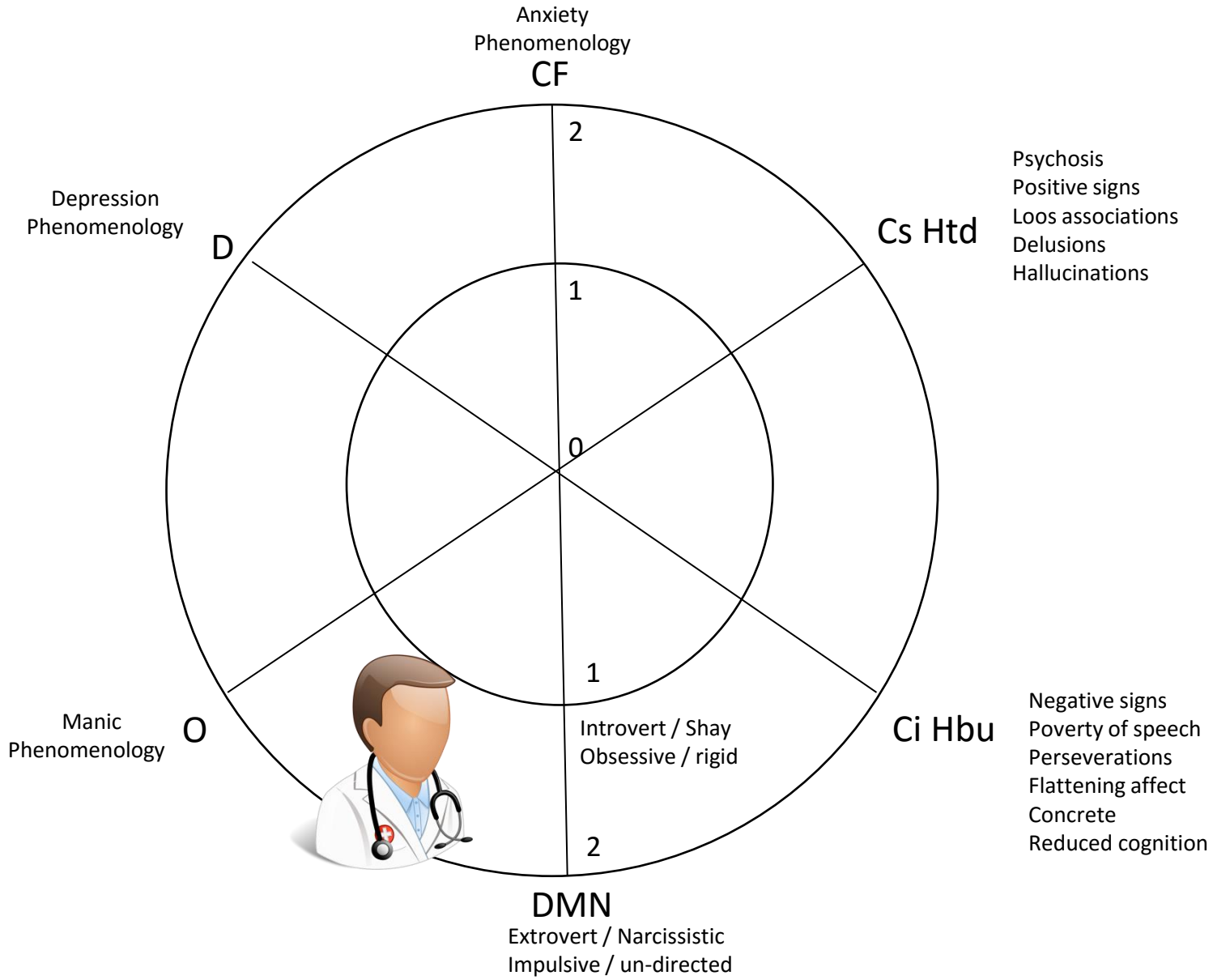
6-D of Subjective Experience by the Patient

Dimension	Subjective	0= non	1=partial	2=Full
DMN	Feels sensitive very much influenced by social events	non	Sometimes Approximately half of any given period	All the time
Ci Hbu	"Empty head," repeated reduced thoughts.	non	"	"
Cs Htd	Derealization, Confused	non	"	"
CF	Anxious, panic, fear of dying Palpitation, breathing, dizziness, tremor	non	"	"
D	Depressed, Tiered, Heavy, Apathetic	non	"	"
O	Elated, Excited, Restless,	non	"	"



6-D of Clinician Assessment Mental Status Examination

Legend :
 0= non
 1=Partial
 2=Full

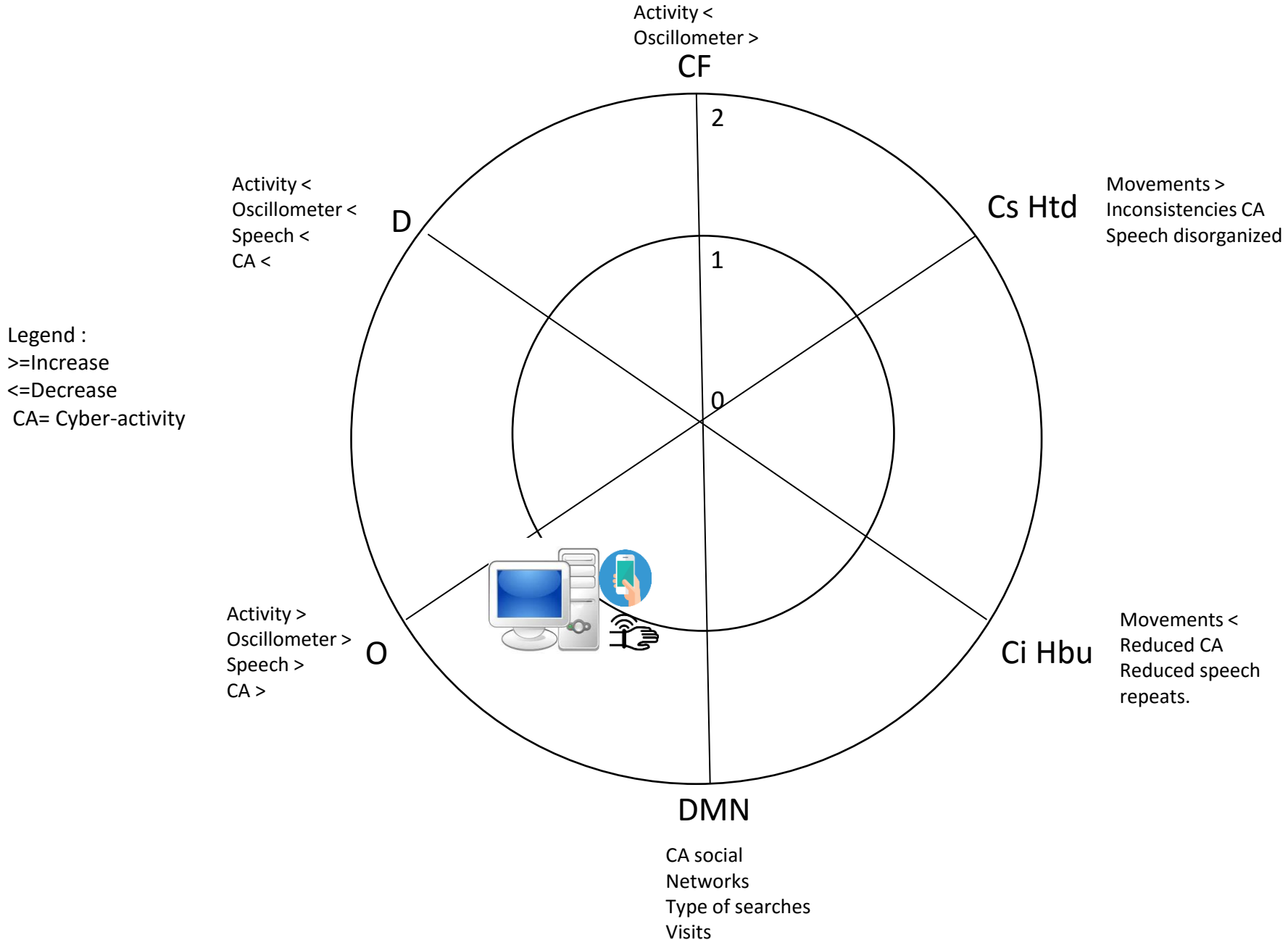


6-D of Clinician Assessment Mental Status Examination

Dimension	Here use DSM criteria for major entities	0= non	1=partial	2=Full
DMN	Immaturity (low frustration threshold, egocentricity, dependence) use Narcissistic, Borderline, DSM and psychoanalytic criteria	non	Introvert / Shay Obsessive / rigid	Extrovert / Narcissistic Impulsive / un-directed
Ci Hbu	Negative signs (as in DSM)	non	Sometimes Approximately half of any given period	All the time
Cs Htd	Positive signs (as in DSM)	non	“	“
CF	Anxiety (as in DSM)	non	“	“
D	Major depression (as in DSM)	non	“	“
O	Mania (as in DSM)	non	“	“



6-D of Cyber-Activity Wearable Sensors



Collected	Cs Htd	Ci Hbu	D	O	CF	DMN	1= Introvert	1= Rigid/Obsessive	2= Extrovert	2= Impulsive
Speech content										
Text content										
Emails content										
Speech volume										
Text Volume										
Emails Volume										
Speech Rhythm during day consistency										
Text Rhythm during day consistency										
Emails Rhythm during day consistency										
Speech Speed										
Text Speed										
Emails Speed										
Speech Out>in Out <in										
Text Out>in Out <in										
Emails Out>in Out <in										
Number of Phone contacts										
Number of Text contacts)										
Time spent actively in social network activity per day										
Time spent in social network activity compared with non-social activity										
Web Content / Type of site										
Web Content / Variability contents (same contents)										
Repeated sites %										
Time spent in each site Consistency										
Mobile Oscillometer										
Mobile Navigation speed										
Mobile Navigation location										
Mobile Navigation location repeats										
Mobile Speech Voice volume										
Mobile Speech Voice tone										
food consumption										
body weight										
pulse										
breathing										
day overall routeen										
day lesure routeen										
Age onset of changes										
The above = Stable - fluctuating Progressive										

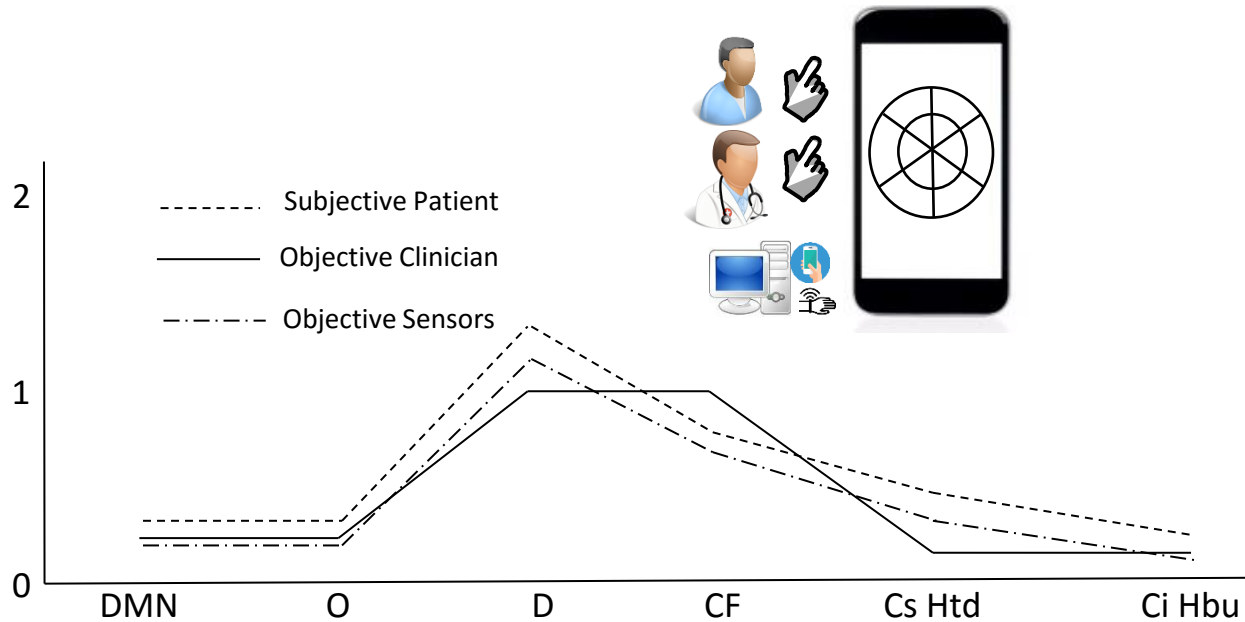
Cyber-Activity Wearable Sensors Collections



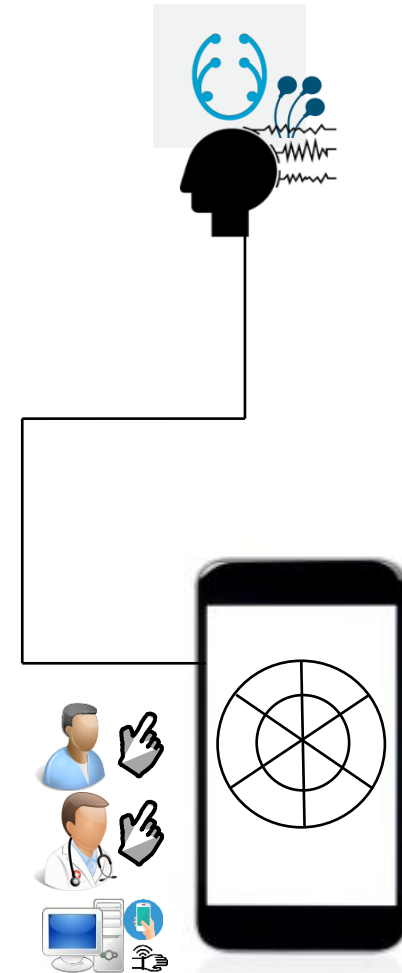
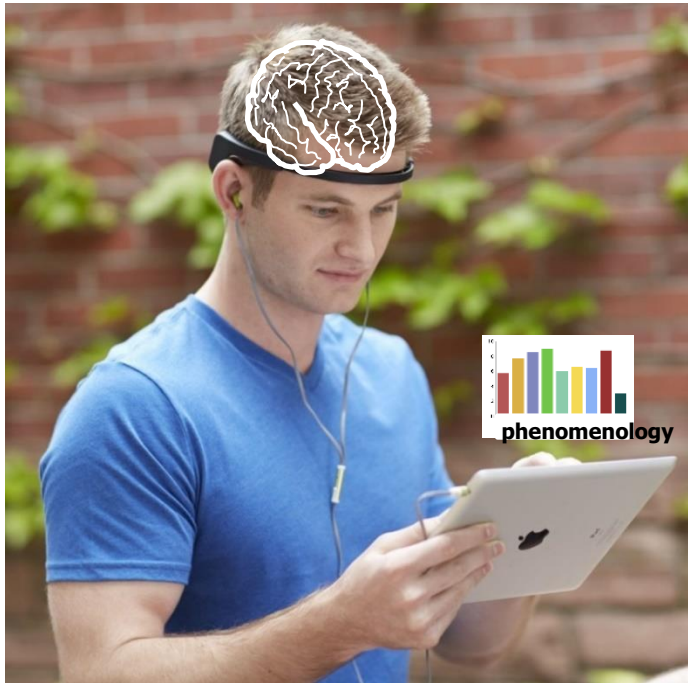
provisional # 62/252,596

Hamming distance calculated for Confidence Coefficient of all dimensions for each measurement

Comparison of the subjective rating of the user, the objective scoring of the clinician and the collected estimations of the cyber-sensors data are constantly compared (Hamming distance) to generate a "confidence coefficient of cross validation corroborating the findings toward discovery

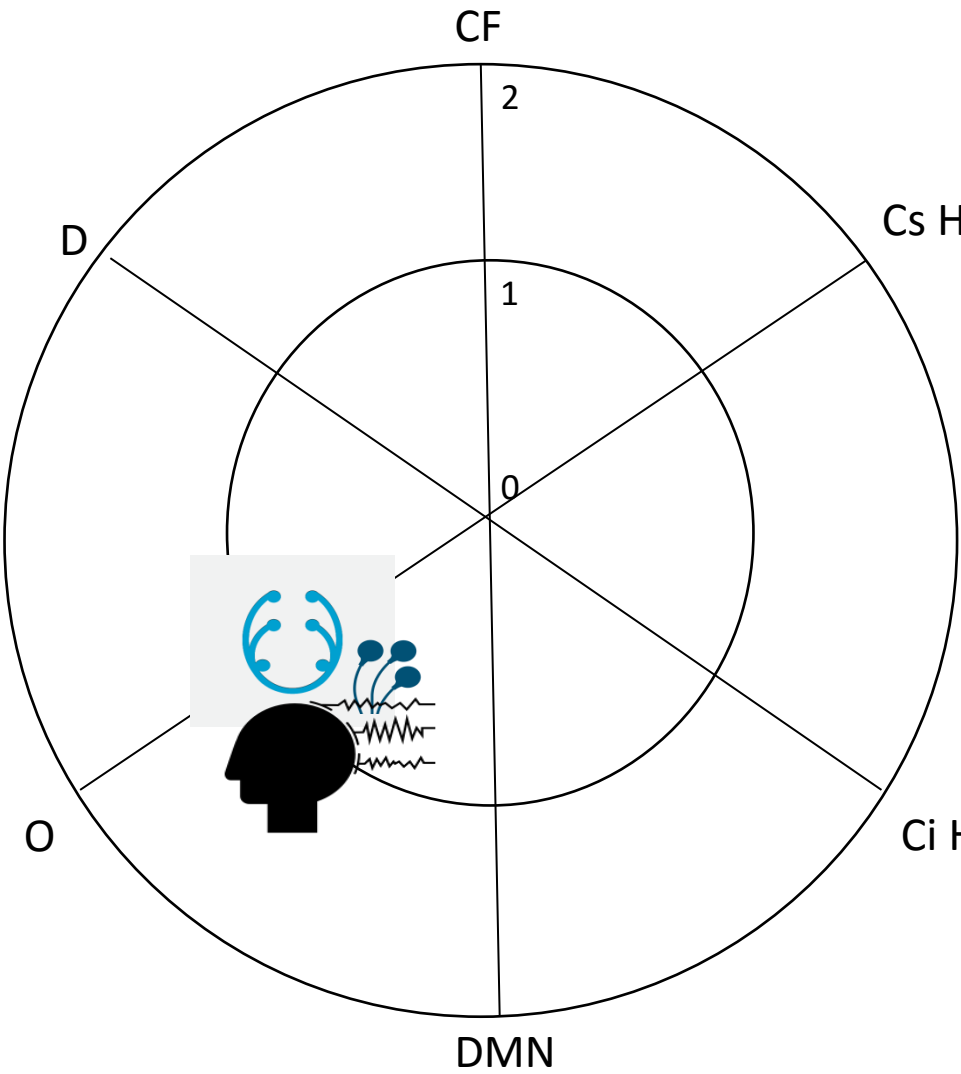


Brain Imaging biomarker will be collected by using the 6-Dimensional subjective, objective and cyber-related application concomitantly synchronized wearing an EEG consumer device



6-D of Discoverable Brain-Imaging Biomarkers

Stability over millisecond ranges of all below



Whole brain Matching complexity, estimations. Free energy estimations. Entropy measurements

Correlations, Synchrony, Granger causality Mutual information, Dimension estimation Bayesian statistics Dynamic Causal Modeling Independent components analysis, Neural complexity (Correlation matrix) Graph assessment of overall Small Wordiness. Estimating hierarchy with hub composition K-shell decomposition, Fractal geometry estimations, Integrated information theory estimations

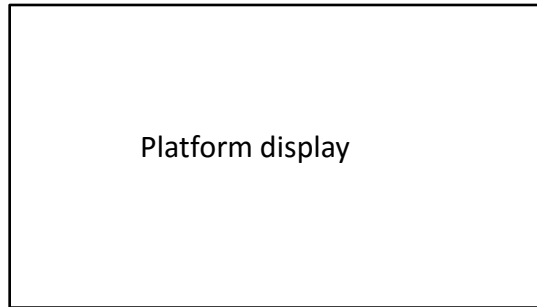
Age-related changes of all of the above

6-D of Discoverable Brain-Imaging Biomarkers

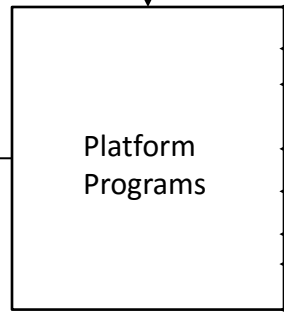
Dimension	Brain-Imaging Biomarkers Brain profiles
DMN	
Ci Hbu	Connectivity integration (Ci) Hierarchical bottom up insufficiency (Hbu) Over-connection – As seen in Correlations, Synchrony, Granger causality Mutual information, Dimension estimation Bayesian statistics Dynamic Causal Modeling Independent components analysis, Neural complexity (Correlation matrix) Graph assessment of overall Small Worldness
Cs Htd	Connectivity segregation (Cs) Hierarchical Top-down shift (Htd) Disconnection – As seen in - “
CF	Instabilities within millisecond range. As seen in - “
D	Deoptimization - Whole brain Matching complexity, estimations. Free energy estimations. Entropy measurements
O	Optimization – “



Infrastructure



Platform display



Platform Programs

Channels



Platform display



USER

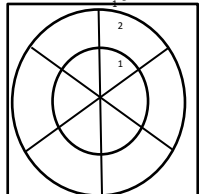
Demographics

Pay

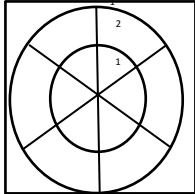
Intake basics

Updated Meds/treat

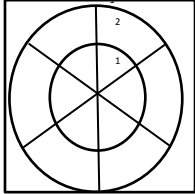
User Subjective



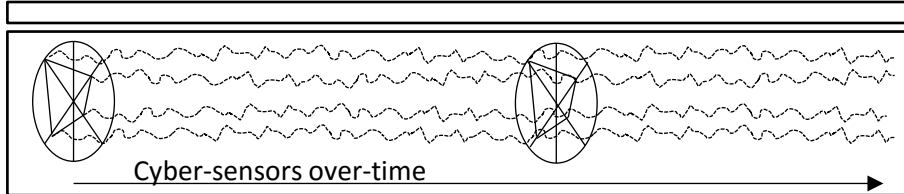
Clinician



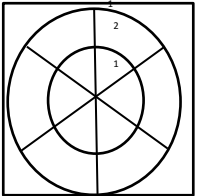
Cyber-sensors



Confidence Coefficient



EEG Brain Imaging



Alerts from user

Alerts to user

Other

CBP



Meds



Psychotherapy



Cognitive



Nero feedback



tDCS

