QEIv15™ EEG

A Physics-Based Structural Engine for EEG Research

What this is

QEIv15™ EEG is a deterministic, physics-based structural analysis engine for electroencephalography.

It treats EEG recordings as **physical dynamical systems**, not as signals to be classified or predicted.

The engine exposes **structural observables** derived directly from signal trajectories, including:

- Entropy flow and entropy gradients
- Curvature (κ) and stiffness-related invariants
- Coherence structure and instability
- Time-localised structural deviations ("events")

No machine learning.
No probabilistic inference.
No classifiers or diagnostic labels.

Why this matters

Most EEG analysis pipelines today rely on combinations of:

- Spectral decomposition
- Statistical features
- Connectivity measures
- Machine-learning classifiers

These approaches are powerful, but they are often:

- Stochastic or training-dependent

- Sensitive to preprocessing choices
- Difficult to reproduce exactly
- Optimised for classification rather than structural understanding

QEIv15™ EEG introduces an **orthogonal axis of analysis**.

It provides **deterministic, reproducible structural measurements** that can be:

- Compared across sessions
- Aligned with behavioural or experimental markers
- Studied longitudinally
- Used to explore regime transitions and instability

It is designed to be **additive**, not competitive, with existing toolchains (EEGLAB, MNE, FieldTrip, TAPAS, etc.).

What researchers receive

The research evaluation package includes:

- An on-prem Docker image (fast and precision modes)
- Deterministic JSON outputs with reproducibility hashes
- Time-localised event windows
- Ranked channel contributions (relative, non-diagnostic)
- A consistency and integrity layer that flags unreliable runs

All computation runs locally in the lab environment.

How it is used

QEIv15™ EEG does **not** diagnose, predict, or classify conditions.

Instead, it allows researchers to ask new questions, such as:

- Are structural deviations repeatable across sessions?
- Do instability signatures precede behavioural or experimental events?
- Which channels contribute most strongly to structural change?
- How do structural regimes differ across cohorts or tasks?

Interpretation remains the responsibility of the researcher.

Licensing and scope

This is a **research-only evaluation**.

- Non-commercial academic research is permitted
- Publication of scientific insights derived from outputs is permitted
- Clinical, diagnostic, or commercial use is excluded
- The engine and methods remain the intellectual property of NeoAmorfic Ltd
- Outputs belong to the researchers

The evaluation licence is time-limited and machine-bound.

Why now

QEIv15™ EEG has been developed alongside a broader physics-intelligence framework used across multiple domains.

We are offering access selectively to neuroscience and EEG research groups who are interested in exploring **deterministic structure**, not replacing existing methods.

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QEIv15™ EEG is intended to open new research directions.