Neuronology at a Grand Scale: Building an Open, Transparent, and Collaborative Scientific Ecosystem for AGI and Mental Health

Because it is basic scientific common sense to study and understand how the brain works—how it stores and processes data and information, applies logic to reason and draw conclusions, shapes perception, and performs a wide range of cognitive functions. If the ultimate goal of AGI is to replicate human-like intelligence, then the most direct and rational approach is to first understand how nature has already achieved this in the human brain. Neuronology provides a structured, scientific pathway to uncover these mechanisms and translate them into artificial systems. For example, it has the potential to offer the depth of understanding and insight needed to tackle complex challenges—such as those presented by Elon Musk's Neuralink—in a scientifically rigorous manner, potentially leading to solutions that are not only ten times more effective, but also significantly more meaningful and sustainable.

When basic research in Neuronology is conducted by ten thousand researchers—including Ph.D. students—in an open, transparent, and collaborative manner, with an unwavering commitment to gaining objective understanding free from the constraints of narrowly defined problems or artificial limitations, it creates fertile ground for genuine discovery. This kind of curiosity-driven inquiry fosters foundational breakthroughs that are untainted by bias, premature assumptions, or predefined objectives.

Crucially, it necessitates the development of new tools, technologies, instruments, and methodologies to address each research question—thereby not only expanding scientific knowledge but also driving innovation in multiple directions. Over time, this collective effort across hundreds of universities and hospitals

cultivates a robust ecosystem of platforms, protocols, and empirical practices, all contributing to a sound framework for testing, validation, and falsification—ensuring that newly generated knowledge is both reliable and reproducible.

For example, nearly everything currently accepted about the nature and essential properties of components, the structure and anatomy of Component-Based Products (CBPs), and the methods and mechanisms of Component-Based Engineering (CBE) is rooted in pseudoscientific misconceptions. Critically, there is no proven or widely accepted scientific framework to test, validate, or falsify many of these misconceptions—including the prevailing descriptions, definitions, and explanations—leaving the field vulnerable to unchallenged assumptions.

Moreover, the existing body of knowledge contains numerous critical gaps. The scientific insights gained through Componentology have successfully exposed these misconceptions and addressed many of those deficiencies. I am confident that the same holds true for the current theoretical foundation of AI and AGI, which likewise demands rigorous re-examination and correction through a hard scientific discipline such as Neuronology. Indeed, Neuronology may prove to be thousands of times more complex—and more rewarding—than Componentology, both in scope and in the depth of scientific understanding required. This reality necessitates the large-scale development of a comprehensive, open, and collaborative scientific ecosystem to support AGI research and innovation.

Applied research and potential transformative innovations grounded in the scientific knowledge, insights, and objective understanding, accumulated through pure or basic research in Neuronology will extend far beyond AGI and Neuralink, offering transformative potential in mental health, cognitive science, bio-cellular computing, and many other fields that may only emerge in the decades to come.