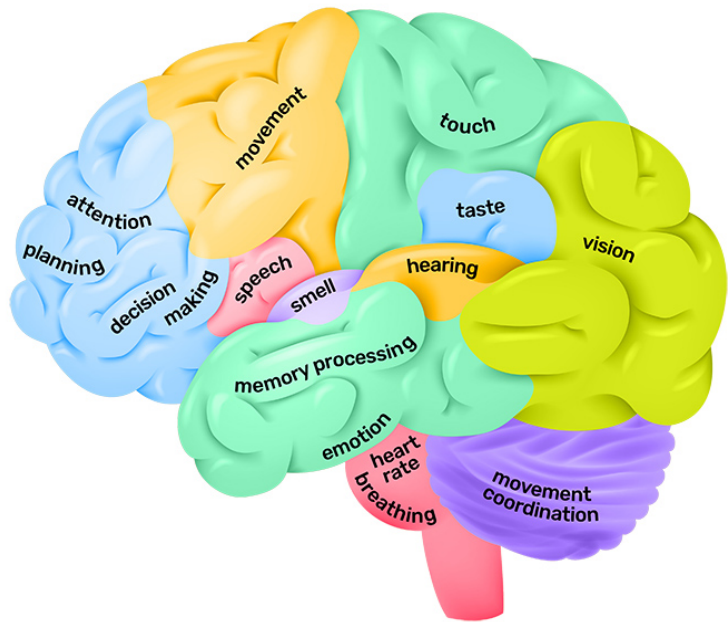


# INTEGRATED AI: HIGH-LEVEL BRAIN AUG/2021



| Region         | Function  | Tech  | Progress | Verb         |
|----------------|---|---|----------|--------------|
| Frontal lobe   | Memory processing, reasoning, regulating emotions...                        | GPT, BlenderBot 2.0...                          |          | PROCESS      |
|                | Planning, attention, problem solving, decisions, morality, personality...   | MuZero, GPT-3, GPT-J...                         |          | DECIDE       |
| Parietal lobe  | Reading and comprehension...  | GPT-3, GPT-J...                                 |          | READ         |
|                | Sense of time/space, taste, touch, link between functions of other lobes... | Tastry, Gastrograph AI...                       |          | SENSE        |
| Temporal lobe  | Hearing, speech...  | General speech AI (Otter, Dragon, Synthesia...) |          | LISTEN/SPEAK |
|                | Understanding, language, memory, learning...                                | BlenderBot 2.0, LaMDA...                        |          | LEARN        |
| Occipital lobe | Vision and integrating visual information: colour, shape, distance...       | CLIP, Wudao 2.0...                              |          | SEE          |
| Cerebellum     | Movement coordination, balance...   | Robotics (Toyota, Boston Dynamics...)           |          | MOVE         |
| Brain stem     | Body functions, heart rate, breathing, temperature...                       | General monitoring                              |          | MONITOR      |

Alan D. Thompson. August 2021. <https://lifearchitect.ai/>

For interest and visualisation only. Simplified view of a complex structure. 'Best guess' progress as of publication date. Green battery icon Indicates significant progress, but is not indicative of 100% completion.

Brain image: Queensland Brain Institute (QBI) - The University of Queensland. Lobes of the brain. <https://qbi.uq.edu.au/brain/brain-anatomy/lobes-brain>

Brain functions: Singh, A. R. (2010). *Brain-mind dyad, human experience, the consciousness tetrad and lattice of mental operations: and further, the need to integrate knowledge from diverse disciplines*. DOI:10.4103/0973-1229.77412

Brain as system: "There are no inherent barriers to our being able to reverse engineer the operating principles of human intelligence and replicate these capabilities in the more powerful computational substrates..."

The human brain is a complex hierarchy of complex systems, but it does not represent a level of complexity beyond what we are already capable of handling." Kurzweil, R. (2005). *The singularity is near: When humans transcend biology*. New York: Viking.

GPT + brain: "Specific models accurately predict human brain activity... with up to 100% predictivity... transformers such as BERT, predict large portions of the data. The model that predicts the human data best across datasets is GPT2-xl [this paper was written before the release of GPT-3/GPT-J], which predicts [test datasets] at close to 100%... These scores are higher in the language network than other parts of the brain." Schrimpf et al. (2020). *Artificial neural networks accurately predict language processing in the brain*. <https://www.biorxiv.org/content/10.1101/2020.06.26.174482v2.full>

