Could future devices read images from our brains? ~ Mary Lou Jepsen

The author starts with her story of having a brain surgery affecting her neurotransmitter and hormonal release in the brain which led her to consume medication drugs constantly since then, but being an experimentalist at heart, she experimented with different combinations of these medications and was awed by how small dosage changes were making drastic changes in behaviour and perspective towards self and others. Now, she points to the fact that “We think mostly in images”, even philosophers like Descartes, Hume, Hobbes believed that mental images are central in creative thinking. She describes an experiment now, which reveals that watching an image, or imagining watching that image is more or less the same thing, they invoke approximately the same activations in the brain. This is also evident when a person experiencing emotional trauma or imagining about it, starts to feel a similar kinda pain. Can we extract these mental images and visualize them on a computer? The author describes an experiment by a top neuroscience group in this area, first, the subjects were shown hours of youtube videos, simultaneously their brain scan was stored. A model was developed based on this data. Now, the subjects were shown a new video, and the corresponding brain scans were fed to the model to create a digital video. The results were awestruck, the digital video was quite similar to the actual movie but although with an extremely low resolution or noisier version we can say. To improve this, the resolution of the images should be increased thousandfold. But most researchers have focused on creating bigger magnets to achieve this, but this is impractical if too much resolution is required. Most of the breakthrough in fMRI until now has not been due to bigger magnets but by sophisticated decoding and encoding techniques in the transmitter, receiver, radio signals etc. components. Why create bigger magnets? create better ones. Recent breakthrough in nanoscience led to the invention of magnets using which we can lay out very fine detailed magnetic field patterns throughout the brain, kinda like a hologram across the brain which can be tuned heavily to alter the magnetic patterns giving results in a way we want to scan. Putting all this research together could bring a thousandfold increase in this technology, maybe enable us to read direct neural pathways, mental imagery, and thoughts. How would we deal with that? How would being able to read unfiltered human thoughts look like, No more secrets can be hidden right when people can directly communicate with thoughts. How would we cope with it, what it would change?. On the upside, will it help us to amplify our intelligence, allow us to heal Alzheimer’s, ADHD and all? One thing is clear, reverse engineering the brain would become extremely easy. Maybe it would also be one of the building blocks to “Singularity” at which machines’ and humans' intelligence would merge as described by Ray Kurzweil.