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Step-by-step neuroscience from an undergraduates' perspective: if neuroimaging is the answer, what is the question?

Science has a remarkable ability to transcend boundaries and defy limitations. Despite the constraints of limited resources in my country, my passion for science has driven me to actively pursue my interest in the field of neuroscience. I have embarked on a journey of knowledge by completing the comprehensive Neuroscience series on Coursera.

In my upcoming presentation, I will delve into the intriguing question, "If neuroimaging is the answer, what is the question?" Specifically, I will explore the realm of psychological inference and the nuanced types of questions that can and cannot be effectively addressed using functional Magnetic Resonance Imaging (fMRI).

To illustrate the potential and limitations of neuroimaging, I will draw upon captivating examples from the media, legal applications, and clinical science. Together, we will navigate through the intricate landscape of brain maps and embark on the enlightening process of reverse inference. By examining the challenges of interpreting neuroimaging results and emphasizing the significance of theory-driven analyses, we will gain a deeper understanding of the complex relationship between brain activity and psychological states.

Furthermore, I will shed light on the crucial distinction between forward inference and reverse inference, cautioning against fallacious reasoning in our interpretation of neuroimaging findings. Join me on this captivating exploration as we unravel the mysteries of neuroimaging and its profound implications for unraveling the intricate workings of the human mind.

Keywords: Psychological inference, brain mapping, reverse inference, forward inference, theory-driven analyses, limitations, brain activity

Biography:

Miss. Yaren Doğan is a passionate and dedicated individual with a strong interest in the field of neuroscience and biomedical engineering. Her journey has been driven by a deep curiosity and fascination for understanding the intricacies of the human brain. She has delved into various aspects, including fMRI principles, data analysis, and neuroscientific research. Her ultimate goal is to contribute to understanding and treating neurological disorders, making significant strides in this fascinating area. Throughout my experiences, she has honed exceptional skills in problem-solving, effective communication, and thriving in collaborative environments. As an active member of student organizations and global IEEE networks, she has had the privilege to participate in conferences and training programs, continuously expanding my knowledge and abilities. With unwavering enthusiasm and a diverse skill set, She eagerly look forward to making a meaningful impact at the Neuroscience 2023 Congress.