

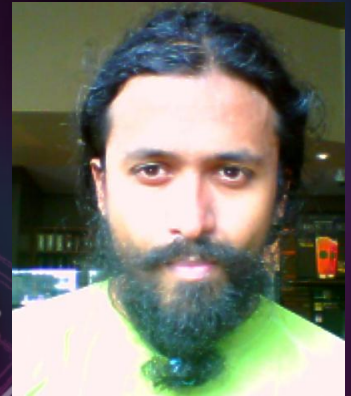
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Edition IV



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Characterizing evidence thresholds for human decision-making

Abstract: Every decision actually conceals another decision. Overtly, decisions are reflected in the selection of one choice out of all available possibilities. However, our examination of these choices involves an element of deciding when we've seen enough, or thought enough, about the choices available in order to make a decision. The process of thinking about choices is well-understood across multiple levels of explanation. Behavioral scientists have tested various forms of race-to-threshold models to demonstrate that human decisions involve some sort of accumulation of evidence up to a limit, followed by emission of a decision. Neuroscientists have used both animal and human studies to demonstrate the existence of precisely such an accumulative process in the lateral intraparietal region of the brain. However, less is understood, both behaviorally and neuroscientifically about how such limits are defined for decisions in the first place. In this talk, I will describe three studies in my lab where we try to ask this question. First, I will describe what sort of computational models best explain humans' decision-to-decide in a particular experimental paradigm called decision-by-sampling. Second, I will describe some modelling and experimental results from my lab suggesting that humans' decisions about how much evidence to collect before deciding may be adaptive even in simple perceptual decision-making tasks. Third, I will present a model explaining Parkinson's Law - that effort goes to infinity as time to deadline goes to zero, as rational metareasoning about where to place decision thresholds. I will conclude with thoughts about how to correlate this line of work with neuroscientific methods of inquiry.

Brief Bio: Nisheeth Srivastava teaches Computer Science and Cognitive Science at IIT Kanpur.