Inferring Individual Goals Using Inverse Reinforcement Learning

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Presentation Abstract Summary Most decision tasks in cognitive neuroscience have relied on simplified paradigms with discrete state spaces and known optimal solutions. However, most real-world decisions involve large state spaces and unknown optimal behavior. Taking an inverse reinforcement learning approach, we used generative adversarial networks to successfully estimate the latent goals of humans playing a competitive task taking place in a continuous state space. We show that our model produces sample behavior capturing the rich dynamics of individual players. Inferring the latent goal dynamics of individual subjects allows us to model dynamic, individualized, and trial-specific estimates of subjective value, with implications for the study of individual differences in neuroscience.

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