

2022 Spence Award Mini Episode: Oriel FeldmanHall on Investigating Complex Brain Processes

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The winners of the [2022 APS Janet Taylor Spence Award](#) represent some of the brightest and most innovative young psychological scientists in the world. In a series of mini-episodes, [Under the Cortex](#) talks with each winner about their research and goals.

Today, Oriel FeldmanHall (Brown University) tells us about her research to disentangle the cognitive and neural processes behind the complex choices that form the basis of human social behavior.

Transcript:

Charles Blue ([00:12](#))

This is Charles Blue with the Association for Psychological Science with another mini podcast, speaking with one of our 2022 Spence Award winners. Today, I have the pleasure of speaking with Oriel FeldmanHall with Brown University. Her work merges multiple different fields, including behavioral economics and social psychology, to investigate the brain mechanisms that support these complex processes. Oriel, welcome to the program.

Oriel FeldmanHall ([00:39](#))

Thanks so much for having me.

Charles Blue ([00:41](#))

Before we dive too deep into other questions, can you just tell us generally about your current field of research? What are you most interested in? What are you trying to uncover?

Oriel FeldmanHall ([00:51](#))

Sure. So I'm a social neuroscientist, which means that I study how individuals interact with other people. More specifically, I'm curious about how people make prosocial decisions under uncertainty. So how do they decide to help another person to be fair to them, to punish or to withhold punishment, all while not knowing what choice is the best choice at hand. So if you think about having to decipher what another person is thinking or feeling, we don't always have access to the motivations or the plans of another person, and so we have to execute these choices about whether to help or to cooperate in situations where we don't always know what another person is planning to do. And this makes for a very hard decision problem.

Charles Blue ([01:47](#))

So what inroads have you made in understanding this, how they make these complex choices?

Oriel FeldmanHall ([01:54](#))

Well, I think there's a few things. One of the things that my lab tries to do is to study these types of decisions in the laboratory, but in situations that most resemble what happens out in the wild, what's happening in the real world? We try to preserve all of the tensions or most of the tensions rather than are happening in the real world, and we try to bring them into the laboratory. So it really helps get a deeper understanding of the mechanism. So what types of learning mechanisms like associative learning or reinforcement learning or structure learning do people deploy when they're making these types of choices? And we feel that we're starting to get a good handle on those mechanisms because we're better able to capture the tensions of the real world in these sort of sterile laboratory settings.

Charles Blue ([02:53](#))

I'm curious, how can you do that? Essentially, how confident are you that you were able to at least recreate sufficiently the natural interactions that happen around us with family and friends in a laboratory setting?

Oriel FeldmanHall ([03:06](#))

Sure. One of the tools that we use is behavioral economics. So we essentially build these economic games that rely on strategy and a willingness to pay, to cooperate or to help, depending on what the other person is deciding to do. Now these bear a little bit of resemblance to what happens in the real world, but of course, they're also stripped back. But there are things that we can do to enhance the validity of these tasks of these games that make them more like the real world, we can make them much more complex. We can have people play in the lab with other people in real time. We can enlarge the decision space so that the tensions are continually changing, just like the ones that we see and experience in the real world. That's one tool that we use, and the other thing that we do is we also try to sometimes bring the laboratory out into the wild. So right now we're running a study on an incoming cohort of freshmen at Brown University, and we're watching and measuring how they build their networks when they come into school. They have no friends, but in those first few weeks and over the course of the year, they built this rich network of friendship. And so we're testing a lot of our models of how people represent these social networks basically in the wild as it unfolds in real time. It's a longitudinal study over the course of the year.

Charles Blue ([04:31](#))

Looking to the future, what are the main challenges that you see? Are there any major roadblocks things that would be important to address so you could really advance our understanding in this area?

Oriel FeldmanHall ([04:43](#))

Yeah, that's a great question. I think there's a lot of answers to that question. I think there are a lot of different roadblocks. One that I see and that I'm experiencing at the moment and trying to overcome is the simplicity of our computational models and capturing the decision and learning processes that humans are involved in. Basically what we're trying to do is scale up these models to better mimic complexities that people experience in the real world when they're engaging with other people. And that's not an easy problem. So that's something that we're actively tackling, and I think that's going to

be a long slog that will take a number of years to get through.

Charles Blue ([05:28](#))

Well, I thank you for your time and for telling us a little bit about the research you're engaged with. This is Charles Blue with the Association for Psychological Science, and I've been talking with Oriel FeldmanHall at Brown University, one of the recipients of the APS 2022 Spencer award. Thanks for chatting today.

Oriel FeldmanHall ([05:45](#))

Thank you so much for having me.

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