

# BRAIN 2021



## SESSION 8: MODERN METHODS

A major driving force in the modern neuroscience revolution has been the advent of new technologies that improve our ability to study (and alter) brain function. This work is all over the media – it is impossible to go a day without hearing about a new MRI scan, interventional approach, or other way in which artificial intelligence is upending everything. The challenge for the modern psychiatrist is intense: we need to not only keep up with all of the new science but also figure out when and how to integrate it into clinical practice.

This session will guide you through some of the cool things we've discovered, review areas of ongoing controversy, and give you a sneak peek at what we hope the future will hold!

### On Your Own

*Read (Neuroimaging):*

**Scanning for Justice**

**Imaging and Reimagining the Mind**

**Default Mode Network: the Basics for Psychiatrists**

*Read (Computational Psychiatry):*

**Computational Psychiatry: Embracing Uncertainty and Focusing on Individuals, Not Averages**

**Missed Connections: A Network Approach to Understanding Psychiatric Illness**

*Watch:*

**"Current Reality"** (if you didn't already watch)

**"Circuit Workouts: You'd be Better Off DREADD"**

**"Circuit Workouts: Feeling Lightheaded?"**

### With Your Pod (Or on Your Own)

**Neuroscience in the Media: The Remote Control Brain**

### Assessment

At the end of Session 8, you should be able to answer the following:

- 1. Describe the function of the default mode network (DMN) and its component brain regions.**
- 2. What is tDCS and how does it work?**
- 3. What is optogenetics?**
- 4. What is a DREADD?**
- 5. You are an expert witness asked to testify at a court hearing for a murder trial. The defense attorney presents an fMRI showing bilateral hypoactive amygdala reactivity as evidence that the patient is insane and cannot be accountable for his actions. You are asked to weigh in. What do you say?**

→ **When you're ready, click here to submit your responses.**

### Fun Extras!

*Read:*

**Out of the Cave, Into the Light? Modeling Mental Illness with Organoids**

*Watch:*

**"Your Brain in a Dish"**

**"Dude, There's a Fly in My Beer!"**

**"The Connectome"**