**Docket #:** S22-502

# Network analysis discerning pathological craving from physiological hunger and sleep states

Stanford researchers are changing the way we approach neuropsychiatric care; they've delved into the complex world of brain signals and developed an analysis that distinguishes cravings from basic needs like hunger and sleep, offering a whole new way to fine-tune treatments for binge eating disorder. They've measured Nucleus Accumbens functional connectivity using a method called Phase Locking Value (PLV) to draw clear lines between different behavioral conditions, making it easier to differentiate between cravings and other basic needs. This progress not only advances our understanding of neuropsychiatric issues but also ushers in a promising era of personalized treatments, offering new hope and progress for those struggling with eating disorders.

## Applications

- Precision neuropsychiatric treatments
- Neurobehavioral research and studies
- Closed-loop therapy for eating disorders

## Advantages

- Cutting edge – there is currently no method to differentiate low frequency spectral activity between craving versus sleep states
- More effective therapeutic outcomes

## Publications

- Camarin E. Rolle, Grace Y. Ng, Young-Hoon Nho, Daniel A.N. Barbosa, Rajat S. Shivacharan, Joshua I. Gold, Dani S. Bassett, Casey H. Halpern, Vivek Buch. Accumbens connectivity during deep-brain stimulation differentiates loss of control from physiologic behavioral states. Brain Stimulation. Volume 16, Issue 5, Pages 1384-1391 (2023).
- Vivek Buch, Camarin Rolle, Casey Halpern et al. Pilot study of responsive nucleus accumbens deep brain stimulation for loss-of-control eating. Nat Med 28, 1791–1796 (2022).

## Patents

- Published Application: WO2025015345

## Innovators

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## Licensing Contact


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