

Use of AI/ML to Improve Drug Development

Chairs: Larry Alphas
Joseph Geraci

ISCTM 18th Annual Meeting
23-25 February 2022
Grand Hyatt, Washington DC
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ISCTM Activities in AI/ML

- **ISCTM Feb 2020**
 - **Enhancing drug development through artificial intelligence (AI) and machine learning (ML)**
- **Work groups**
 - Biomarkers, Outcomes, Placebo Response, Trial Enrichment
- **Manuscript**
 - **Using Artificial Intelligence-based Methods to address the Placebo Response in Clinical Trials** Erica A. Smith, William P. Horan, Dominique Demolle, Peter Schueler, Dong-Jing Fu, Ariana E. Anderson, Joseph Geraci, Florence Butlen-Ducuing, Jasmine Link, Ni A. Khin, Robert Morlock, Larry D. Alphs

Another Session on AI?

Didn't we address all the questions already?

Can we use AI/ML to

- ❖ better understand brain circuitry and their effects on human behavior?
- ❖ better understand CNS syndromes?
- ❖ identify better treatments for CNS diseases?
- ❖ develop treatments faster with great success?
- ❖ better select patients who are more likely to respond to the treatment being studied?
- ❖ identify better endpoints/scales to assess CNS symptoms?
- What are the challenges that regulators face in this rapidly emerging environment and what will they be expecting from drug developers?
- What are the ethical challenges for use of AI/ML in CNS treatment development?

Agenda

Time	Topic	Speaker
9:30	Introduction	Larry Alphs
9:45	Use of AI/ML to better discover new drugs for clinical development: Cyclica's POEM technology and how it uses ML	Naheed Kurji
10:00	Machine Learning Strategies to Track Brain and Behavioral State Changes during DBS Treatment for Depression	Helen Mayberg
10:45	Next Generation Machine Intelligence For Drug Development & Clinical Trial Failure Reduction	Joseph Geraci
11:30	Transforming Research in Mental Health via Big Data and Machine Learning	James Kennedy
12:00	ML and AI in Antidepressant Response Prediction: A clinician's Perspective	Ray Lam
12:30	Funding Computational Psychiatry	Michele Ferrante
1:00	Regulation in the Age of Exponential Innovations: Artificial Intelligence	Khair ElZarrad
1:15	Panel Discussion and Summary	
1:45	Adjourn	