



Congress of
Neurological
Surgeons

2023 Data Science Models for Neurosurgeons Virtual Course

Saturday, June 3, 2023
Zoom

Course Description

This course aims to help clinicians develop an understanding of how to frame neurosurgical problems using the best data science approach. The program will provide neurosurgeons and neurosurgical residents with an overview of different machine learning / data science models, coupled with examples of these models in neurosurgical patient populations. The program will include didactic lecture with interactive polling and question and answer sessions, as well as a breakout session for more focused learning in a smaller group.

Learning Objectives

Upon completion of this course, participants will be able to:

1. Discuss and analyze the key differences between unsupervised and supervised learning.
2. Compare and evaluate the strengths, weaknesses, and limitations of various data science models.
3. Evaluate whether a hypothesis can be answered using specific models.

ACCME Accreditation Statement

The Congress of Neurological Surgeons is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Reviewers:

Tiffany Hodges

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Planners:

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Faculty:

Michael Sughrue

Todd Hollon

Aaron Cohen-Gadol

Timothy Lucas

Eric Oermann

Sharona Ben-Haim

AGENDA

All times are in Central Time.

Saturday, June 3rd

9:00–9:05 am	Welcome and introduction, Sharona Ben-Haim
9:05–9:35 am	Overview of data science, artificial intelligence, and machine learning for the neurosurgeon, Eric Oermann
9:35–10:20 am	Processing multi-institutional neurosurgical data sets via unsupervised learning, Todd Hollon
10:20–10:35 am	Break
10:35–11:20 am	Revolutionizing Operative Planning Using AI and Virtual Twins: The Next Frontier, Aaron Cohen-Gadol
11:20–12:05 pm	Techniques used to develop the bidirectional brain-computer interface, Timothy Lucas
12:05–12:20 pm	Break
12:20–1:05 pm	Connectomics to understand neural pathways, Michael Sughrue
1:05–1:50 pm	Using data science to change pathological diagnoses, Todd Hollon
1:50–3:20 pm	Data Science Workshop