



Congress of  
Neurological  
Surgeons

# 2024 Translating Data Science to Neurosurgical Practice: From Computer Screen to Bedside

Saturday, June 8, 2024

Zoom

## Course Description

This course will provide neurosurgeons, junior academic faculty, and residents with a framework for answering neurosurgical questions using data science models and translating these models into clinical practice. The course aims to help clinicians understand how to incorporate data science models into their clinical practice and to critically evaluate models for their transparency, reliability, and efficacy.

## Learning Objectives

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

1. Identify and describe data science models that can address neurosurgical clinical questions
2. Evaluate the pathway from inception to clinical deployment of a data science model in neurosurgical practice
3. Critically analyze neurosurgical data science models for their transparency, reliability, and efficacy

## 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.

## AMA Credit Designation Statement

The Congress of Neurological Surgeons designates this [activity format] for a maximum of *6.50 AMA PRA Category 1 Credit(s)*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

## Reviewers:

Tiffany Hodges

Akash Patel

## Planners:

Natasha Ironside

Eric Oermann

Lauren Stone

## Faculty:

Todd Hollon

Shinjini Kundu

Jiachang Liu

Gustavo Rohde

TBD

TBD

TBD

# AGENDA

**All times are in Central Time**

## **Saturday, June 8**

|                |                                                                                                                        |
|----------------|------------------------------------------------------------------------------------------------------------------------|
| 9:00–9:15 am   | Welcome and introduction, <b>Natasha Ironside and Lauren Stone</b>                                                     |
| 9:15–10:00 am  | Writing a Data Science Question for the Neurosurgical Setting, <b>Todd Hollon</b>                                      |
| 10:00–10:45 am | Designing Interpretable Machine Learning Models - Decomposing Black Box Methods, <b>Jiachang Liu</b>                   |
| 10:45–11:00 am | Break                                                                                                                  |
| 11:00–11:45 am | Alternatives to Convolutional Neural Networks for Signal and Image Processing, <b>Shinjini Kundu and Gustavo Rohde</b> |
| 11:45–12:30 pm | Curating Big Datasets for Use in Neurosurgical Data Science Search, <b>TBD</b>                                         |
| 12:30–12:45 pm | Break                                                                                                                  |
| 12:45–1:30 pm  | Assessing Safety and Efficacy of Data Science Models in the Clinical Environment, <b>TBD</b>                           |
| 1:30–2:15 pm   | Transition to Market: Deploying Data Science Models into Neurosurgical Practice, <b>TBD</b>                            |
| 2:15–2:30 pm   | Break                                                                                                                  |
| 2:30–3:45 pm   | Data Science Workshop                                                                                                  |
| 3:45–4:00 pm   | Conclusion, <b>Natasha Ironside and Lauren Stone</b>                                                                   |