

RC153

## Deep Learning & Machine Intelligence in Radiology

Sunday, Nov. 26 2:00PM - 3:30PM Room: E450A

IN

AMA PRA Category 1 Credits™: 1.50  
ARRT Category A+ Credit: 1.75

### Participants

Paul J. Chang, MD, Chicago, IL (*Moderator*) Co-founder, Stentor/Koninklijke Philips NV; Researcher, Koninklijke Philips NV; Advisory Board, Bayer AG; Advisory Board, Aidoc Ltd; Advisory Board, McCoy

### For information about this presentation, contact:

pchang@radiology.bsd.uchicago.edu

### Sub-Events

#### RC153A An Introduction to Deep Learning & Machine Intelligence: What the Radiologist Needs to Know

##### Participants

Dimitrios Mavroeidis, Eindhoven, Netherlands (*Presenter*) Research, Koninklijke Philips NV

### For information about this presentation, contact:

dimitrios.mavroeidis@philips.com

### LEARNING OBJECTIVES

1) Understand the principles of knowledge extraction from data (Machine Learning). 2) Understand main intuitions behind deep machine learning models (Deep Learning). 3) Understand how Deep Learning can be applied to medical image analysis and the main challenges associated to the application of Deep Learning in this domain.

#### RC153B Deep Learning and Machine Intelligence in Radiology: A Reality Check

##### Participants

Paul J. Chang, MD, Chicago, IL (*Presenter*) Co-founder, Stentor/Koninklijke Philips NV; Researcher, Koninklijke Philips NV; Advisory Board, Bayer AG; Advisory Board, Aidoc Ltd; Advisory Board, McCoy

### LEARNING OBJECTIVES

1) A "realistic" perspective on how deep learning and machine intelligence can add value to radiology will be discussed. 2) The significant challenges with respect to practical implementation of deep learning/machine intelligence offerings by existing radiology workflow and existing IT infrastructure will be reviewed. 3) Strategies for preparing the radiology department and IT for deep learning/machine intelligence will be discussed.

### ABSTRACT

Current and near future requirements and constraints will require radiology practices to continuously improve and demonstrate the value they add to the healthcare enterprise. Merely 'managing the practice' will not be sufficient; groups will be required to compete in an environment where the goal will be measurable improvements in efficiency, productivity, quality, and safety. There has been great interest (as well as fear and hype) regarding the application of deep learning and other machine intelligence approaches to help improve the radiology value proposition. This session will attempt to provide a "reality check" on how these potentially promising technologies might be used by radiology and the significant challenges involved. Topics that will be covered include: • How can we best apply deep learning/machine intelligence to add "true value?" • How do we confidently validate the performance of these technologies? • How can our existing IT systems "feed and consume" these technologies efficiently and at scale? • How can we best harmonize the human radiologist with these machine agents?

#### RC153C Deep Learning: How to Get Started

##### Participants

Abdul Hamid Halabi, Santa Clara, CA (*Presenter*) Employee, NVIDIA Corporation

### For information about this presentation, contact:

ahalabi@nvidia.com