ISMRM

ONE COMMUNITY FOR CLINICIANS AND SCIENTISTS

BRIDGING THE GAP BETWEEN CLINICAL NEEDS AND TECHNOLOGICAL SOLUTIONS

International Society for Magnetic Resonance in Medicine www.ismrm.org

ISMRM WORKSHOP SERIES 2018

GROUNDBREAKING MR SCIENCE • SUPERIOR MR EDUCATION • GLOBAL NETWORKING

ISMRM Workshop on Machine Learning

Pacific Grove, CA, USA • 14–17 March 2018

TARGET AUDIENCE:

This workshop is targeted towards MR physicists (pre- and post-doctoral students) interested in machine learning; radiologists and nuclear medicine physicians using or interested in becoming involved with machine learning approaches to MRI and PET/MRI; and information and data scientists interested in how cutting-edge machine learning algorithms could be used for healthcare applications.
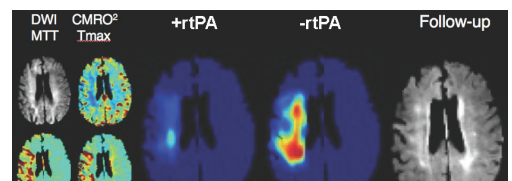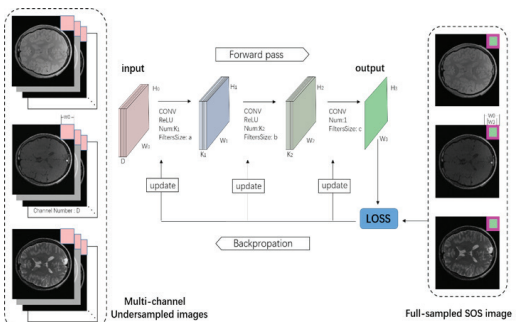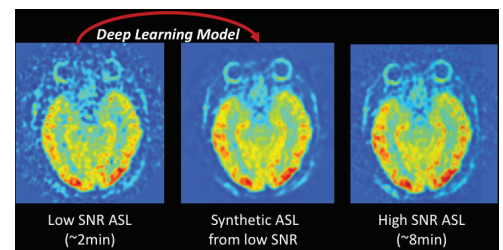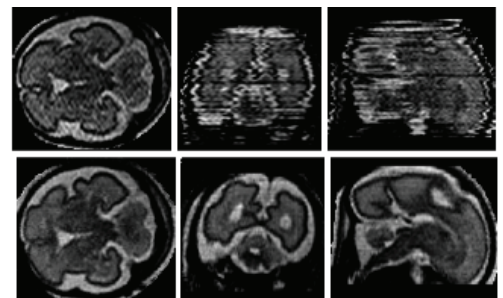
OVERVIEW

This workshop will focus on the use of machine learning for MRI applications, both on the technical aspects of MRI and PET/MRI for improved reconstruction as well as on its use for adding diagnostic value to existing images. This latter aspect would include methods for more robust segmentation as well as disease classification and prediction.

The workshop will feature a mixture of invited scientific presentations, proffered papers, a poster session, small-group discussion, and a keynote lecture. A Young Investigator Award will be presented to students and early-stage post-doctoral candidates or physicians who will be selected from the oral paper presentations.

EDUCATIONAL OBJECTIVES

Upon completion of this activity, participants should be able to:

- Describe the different classes of machine learning algorithms, including supervised and non-supervised learning;

- Identify the latest methods for using deep convolutional neural networks for image processing and reconstruction;

- Recall prior and ongoing efforts to leverage the maximal value from multi-modal MR datasets, including PET/MRI; and

- Recognize current and near-term clinical applications, including segmentation and classification.

COMMITTEE CHAIR

Greg Zaharchuk, M.D., Ph.D.
Stanford University, Stanford, CA, USA

COMMITTEE

Joseph Yitan Cheng, Ph.D.
Stanford University, Stanford, CA, USA

Garry E. Gold, M.D.
Stanford University, Stanford, CA, USA

Enhao Gong, M.Sc.
Stanford University, Stanford, CA, USA

Joseph V. Hajnal, Ph.D.
King's College London
London, England, UK

Florian Knoll, Ph.D.
New York University School of Medicine
New York, NY, USA

Peder E.Z. Larson, Ph.D.
University of California, San Francisco
San Francisco, CA, USA

Dongwook Lee
KAIST, Daejeon, South Korea

Dong Liang, Ph.D.
Shenzhen Institutes of Advanced
  Technology, Shenzhen, China

Kim Mouridsen, Ph.D.
Århus University Hospital, Århus, Denmark

John Pauly, Ph.D.
Stanford University, Stanford, CA, USA

Matthew Rosen, Ph.D.
A.A. Martinos Center for Biomedical
  Imaging, Charlestown, MA, USA

Daniel Rueckert, Ph.D.
Imperial College London
London, England, UK

Jo Schlemper, M.Res.
Imperial College London
London, England, UK

Dinggang Shen, Ph.D.
University of North Carolina
Chapel Hill, NC, USA

Jong Chul Ye, Ph.D.
KAIST, Daejeon, South Korea

Lei (Leslie) Ying, Ph.D.
SUNY Buffalo, Buffalo, NY, USA

Chun Yuan, Ph.D.
University of Washington
Seattle, WA, USA

Bo Zhu, Ph.D.
A.A. Martinos Center for Biomedical
  Imaging, Charlestown, MA, USA

Low SNR ASL (~2min) | Synthetic ASL from low SNR | High SNR ASL (~8min)

FOR MORE INFORMATION INCLUDING HOUSING & REGISTRATION, PLEASE VISIT:
www.ismrm.org/workshops/2018/Machine/ OR CALL: +1 510 841 1899