MICCAI 2018 – Computational Precision Medicine

MICCAI 2018 Workshop and Challenges in Computational Precision Medicine

The Computational Precision Medicine (CPM) 2018 will be held on September 16, in Granada (Spain), in conjunction with **MICCAI 2018**. It will consist of a morning workshop and afternoon challenges. (further details will be provided in early June)

Registration: Participants of CPM workshop and/or challenges may choose to register for the entire MICCAI conference or register at a reduced fee only for this event, listed under Satellite Events on **MICCAI 2018**.

Note: Registration to the workshop/challenge sessions on Sept 16 is a prerequisite for participation in the test phase of the challenge. Contestants should provide proof of registration in order to be allowed into the test phase of each challenge.

Questions about the workshop and challenges? Send email to: farahani@nih.gov

Date	Deadline / Event
May 15	Training phase open for Pancreatic Cancer challenge
June 12	Training phase for all CPM challenges
July 31 - Aug 16 (and Aug 30)	Test phase for all challenges, except for the FDG-PET closing on Aug 30)
Aug 16	Short papers (up to 4 pages) describing the algorithm used in a challenge
Sept 16	CPM Workshop (am) and Challenges (pm) at MICCAI
Sept 16-20	MICCAI Conference (Granada, Spain)

Workshop: Computational Imaging in Precision Medicine

CPM 2018 workshop will be held in the morning of Sunday, Sept 16, in the VIP Room of the Conference Center at MICCAI. The preliminary agenda is as follows:

Session 1

9:30 – 9:40 am   Introduction to CPM (K. Farahani, NCI)

9:40- 10:05 am   NCI Quantitative Imaging, Challenges, and Open Archives (K. Farahani, National Cancer Institute)

10:05 – 10:30 am   Imaging Data Commons and Informatics Technology for Cancer Research (S. Jett, National Cancer Institute)

10:30 – 10:55 am   Next Generation Imaging: Radiomics for Hepatopancreatobiliary Cancers (A. Simpson, Memorial Sloan Kettering Cancer Center)

11:00 am – 11:30 am Coffee Break

Session 2

11: 30 – 11:55 am   Deep Learning Models and Radiomics: Harmonization and Standardization (K. Chang, Massachusetts Institute of Technology)

11:55 – 12:20 pm   On Accuracy, Robustness and Scalable Data Curation for Precision Medicine in Medical Image Computing (M. Reyes, University of Bern)

12:20 – 12:45 pm   Mining Annotations for Computer-Aided Diagnosis using Deep Learning Techniques (K. Yan, National Institutes of Health)

 12:45 – 1:10 pm   A Semi-supervised CNN with Pseudo-class Labels for Atherosclerotic Vascular Calcification Analysis (J. Liu, National Institutes of Health)

Challenge session

CPM Challenges

1. Pancreatic Cancer Survival Prediction Challenge
2. Combined Imaging and Digital Pathology Brain Tumor Classification Challenge
3. Digital Pathology Nuclei Segmentation Challenge
4. FDG-PET Radiomics in Head and Neck Cancers

Challenges my be accessed through the CPM Challenge website
Please note important dates in the chart to the right of this page.

Preliminary agenda for challenge sessions at MICCAI follows:

CPM Challenges on Sept 16, at the VIP Room of the Conference Center

Pancreatic Cancer Survival Prediction Challenge

3:00 – 3:10 pm   Introduction (A. Simpson, Memorial Sloan Kettering Cancer Center, U.S.A.)

3:10 – 3:25 pm   Survival prediction (H. Muhammad, Weill Cornell Medical College and Memorial Sloan Kettering Cancer Center, U.S.A.)

3:25 – 3:40 pm   Multimodal feature extraction for Pancreatic Cancer and Survival Prediction using Random Survival Forests (S. Shankaranarayana,   S. Vinodhkumar, Zasti.ai, India)

3:40 – 3:55 pm   Radiomics-based pancreatic cancer survival prediction on CT (S. Park, Y. Zhou, A.L. Yuille, E. Fishman, Johns Hopkins University,   U.S.A.)

3:55 – 4:10 pm   3D network-based pancreatic cancer survival prediction from CT scans (Y. Zhoua, S. Park, E. Fishman, A.L. Yuill, Johns Hopkins   University, U.S.A.)

4:10 – 4:25 pm   A multi-task approach to survival prediction in pancreatic cancer (U. Bharadwaj)

4:30 pm – 5:00 pm Coffee Break

Imaging and Pathology Brain Tumor Classification Challenge

5:00 – 5:10 pm   Introduction (T. Kurc, Stony Brook Cancer Center, U.S.A.)

5:10 – 5:25 pm   Multi-modal image classification of brain tumor based on deep learning (Q. Qi, Y. Zhang, Y. Huang, and X. Ding, Xiamen University, China)

5:25 – 5:40 pm   Dropout-Enabled Ensemble Learning for Multi-Scale Biomedical Data (A. Momeni, M. Thibault, O. Gevaert, Stanford University, U.S.A.)

5:40 – 5:55   A Combined Radio-Histological Approach for Classification of Low Grade Gliomas (A. Bagari, A. Kumar, A. Kori, M. Khened and G. Krishnamurthi, Indian Institute of Technology, India)

Digital Pathology Nuclei Segmentation Challenge

6:00 – 6:10 pm   Introduction (T. Kurc, Stony Brook Cancer Center)

6:10 – 6:25 pm   Mask-RCNN for Cell Instance Segmentation (S. Zhou, X. Ren, D. Shen and Q. Wang, University of North Carolina at Chapel Hill, U.S.A., and Shanghai Jiao Tong University, China)

6:25 – 6:40 pm   Nuclei segmentation with histopathology images in digital pathology (Y. Zhang, Z. Zeng and W. Xie, Pvmed Inc, and Sun Yat-sen University, China)

6:40 – 6:55 pm   Nuclei Segmentation via FCN-based Coarse-to-fine Semantic Segmentation (Z. Wu, C. Shen, A. van den Hengel and J. Zhang, University of Adelaide, Australia)

6:55 pm   Adjournment

Organizing Committee

- Spyridon Bakas, UPenn
- Hesham Elhalawani, MD Anderson Cancer Center
- Keyvan Farahani, National Cancer Institute
- John Freymann, Leidos Biomedical Research
- David Fuller, MD Anderson Cancer Center
- Jayashree Kalpathy-Cramer, MGH Harvard
- Justin Kirby, Leidos Biomedical Research
- Tahsin Kurc, Stony Brook Cancer Center
- Joel Saltz, Stony Brook Cancer Center
- Amber Simpson, Memorial Sloan Kettering Cancer Center