Wednesday - November 17th

Gather.Town platform: https://bit.ly/3wN1z9x

SIPAIM 2021

SIPAIM - SIIM Joint Conference | Virtual Meeting

West auditorium	**Opening**	10:30

Keynote Talk
Chair: Dr. Marius Linguraru

West auditorium

11:00

Keynote Speaker: Dr. Daniel Racoceanu
Talk: "*Computational Pathology - from Cancers to Neuropathology : pathway of a modern gold standard*"

Lunch — 12:00

Keynote Talk
Chair: Dr. Jorge Brieva

West auditorium

13:00

Keynote Speaker: Dr. Pamela Guevara
Talk: "*Study of structural brain connectivity based on diffusion MRI*"

Chair: Dr. Alexandre Brandão

West auditorium

14:00

Poster and Demo Pitch

14:30

Body Imaging I Chair: Dr. José María Massa **East auditorium**	**Deep Learning** Chair: Dr. Cicero Ferreira Fernandes **West auditorium**
Method for compressing DICOM images with bit-normalization and video CODECs Presenter: Marcos Oliveira, University of Sao Paulo, Brazil.	**Using deep image prior to assist variational selective segmentation deep learning algorithms** Presenter: Liam Burrows, University of Liverpool, United Kingdom.
Segmentation and reconstruction of the lung in CT affected by COVID-19 using deep learning and adaptive convex hull Presenter: Luan de Souza Silva, Federal University of Maranhao, Brazil.	**A deep learning model for classification of diabetic retinopathy in eye fundus images based on retinal lesion detection** Presenter: Melissa de la Pava. Universidad Nacional de Colombia, Colombia.
Multitasking segmentation of lung and COVID-19 findings in CT scans using modified EfficientDet, UNet and MobileNetV3 models Presenter: Diedre Carmo, UNICAMP, Brazil.	**Supervised domain adaptation approach on heterogenous, multi-center MR imaging datasets** Presenter: Justin Park, University of Calgary, Calgary, Canada.
Global and local interpretation of black-box Machine Learning models to determine prognostic factors from early COVID-19 data Presenter: Ananya Jana, Rutgers University, USA.	**Monitoring and evaluation of people in indoors and outdoors using deep learning** Presenter: Bryan Cruz, Universidad del Rosario, Colombia.
Evolution of conditional-GANs for the synthesis of chest x-ray images Presenter: Juan Antonio Rodríguez de la Cruz, Universidad de Veracruz, Mexico.	**3D Convolutional neural networks for classification of Alzheimer's and Parkinson's disease with T1-weighted brain MRI** Presenter: Nikhil Dhinagar, University of Southern California, USA.
Numbering permanent and deciduous teeth via deep instance segmentation in panoramic x-rays Presenter: Laís Pinheiro, Federal University of Bahia, Brazil.	

16:00

Coffee break

Brain Imaging I
Chair: Dr. Pamela Guevara

West auditorium

16:15

White matter connectivity alterations in patients with MRI negative temporal lobe epilepsy using hippocampus specific tractography
Presenter: Yaqiong Chai, University of Southern California, USA.

Altered hippocampal morphometry in infants born very preterm
Presenter: Elly Htite, Research Institute of the McGill University Health Center, Canada.

Diffusion MRI Metrics and their Relation to Dementia Severity: Effects of Harmonization Approaches
Presenter: Sophia Thomopoulos, University of Southern California, USA.

Alzheimer's disease classification accuracy is Improved by MRI harmonization based on attention-guided generative adversarial networks
Presenter: Surabhi Sinha, University of Southern California, USA.

Mining relations between neuropsychological data to characterize Alzheimer's disease
Presenter: German Pabón, Universidad Nacional de Colombia, USA.

Host: Prof. Li Li Min

Beach

17:30

Welcome Show

18:30

Thursday - November 18th

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SIPAIM
2021

SIPAIM - SIIM Joint Conference |
Virtual Meeting

**Brazil Time
(GMT-3)**

Ultrasound Chair: Dr. Theo Zeferino Pavan	**Body Imaging II** Chair: Dr. Niharika Gajawelli
West auditorium	East auditorium

9:45

A quantitative and qualitative study of ultrasound imaging methods Presenter: Amanda Costa Martinez, UNICAMP, Brazil.	**Framework for automatic segmentation of breast cancer using lightweight convolutional neural networks** Presenter: Kleber Pires, Universidade Federal do ABC, Brazil.
Modelling and implementation of an ultrasound beamformer system based on DSP builder Presenter: Jonathan de Oliveira, Pontifícia Universidade Católica do Paraná, Brazil.	**Analysis of breast lesions segmentation by watershed with variation of structuring elements** Presenter: Bruno Goes, Universidade Federal de Uberlândia, Brazil.
Modelling and simulation of an ultrasound reception beamforming using Xilinx Model Composer Presenter: Matheus Jose da Silva Ruzyk, Federal University of Technology-Paraná, Brazil.	**Breast lesion segmentation and characterization using the Small Tumor-Aware Network (STAN) and 2D/3D shape descriptors in ultrasound images** Presenter: Vivian Bass, Universidad Nacional Autónoma de México, Mexico.
Numerical simulation of transcranial focused ultrasound based on head CT images Presenter: Patricia de Andrade, UNICAMP, Brazil.	**Combined multi-protocols qMRI for thigh muscle analysis: a preliminary study** Presenter: Mehran Azimbagirad, University of Western Brittany, France.
Differentiating between stable and progressive carotid atherosclerotic plaques from in-vivo ultrasound images using texture descriptors Presenter: Jan Kybic, Czech Technical University, Czech Republic.	**Motion artifact reduction in abdominal MRIs using generative adversarial networks with perceptual similarity loss** Presenter: Yunan Wu, Northwestern University, USA.

Keynote Talk Chair: Dr. Natasha Lepore West auditorium	**Keynote Speaker:** Dr. Leo Joskowicz **Talk:** *"Accelerating Deep Learning Medical Image Analysis in Radiology"*

11:00

Lunch

12:00

Brain Imaging II Chair: Dr. Julio Villalon	**E-health and AI I** Chair: Dr. Darryl Hwang
West auditorium	East auditorium

13:00

Volumetric segmentation of the corpus callosum: training a deep learning model on diffusion MRI Presenter: Gustavo Pinheiro, University of Campinas, Brazil.	**Healthgate: Microservice integration platform in health domain** Presenter: Lucas Daniel Barboza, Federal Institute of Education, Science and Technology of Espírito Santo, Brazil.
Predicting Tau Accumulation in Cerebral Cortex with Multivariate MRI Morphometry Measurements, Sparse Coding, and Correntropy Presenter: Jianfeng Wu, Arizona State University, USA.	**Leveraging sEMG gesture recognition training on edge devices** Presenter: Alexandre Osorio, Eldorado Research Institute, Brazil.
Unmixing tissue compartments via deep learning T1-T2-relaxation correlation imaging Presenter: Sebastian Endt, Technical University of Munich, Germany.	**Secure neuroimaging analysis over private enclaves using federated learning with homomorphic encryption** Presenter: Dimitris Stripelis, University of Southern California, USA.
Geodesic ray-tracing in white matter fiber crossing region using decomposition of 4th order tensor Presenter: Avinash Bansal, Masaryk University, Czech Republic.	**Secure medical image encryption approach based on Langton's ant and jigsaw transform** Presenter: Ernesto Moya, Universidad Panamericana, Mexico.
PET-MRI analysis to identify metabolic changes during Parkinson's disease Presenter: Jorge Luis Perez-Gonzalez, Universidad Autónoma Metropolitana, México.	**A flexible AI pipeline for medical imaging in a radiology workflow** Presenter: Lucia Antunez, Globant LLC, USA.

Chair: Dr. Antonio Adilton Oliveira West auditorium	**Special Session Health Tech-Innovation Round Table** — **Panelists:** Dr. José Eduardo Bertuzzo Prof. Paulo Schor Prof. Diego Fernandez Slezak

14:15

Coffee break

15:45

16:00

Poster Room	**Poster Session Live Demo**

17:30

Lounge	**Cultural Trivia**

18:30

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Friday - November 19th

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Virtual Meeting

Gather.Town platform: **https://bit.ly/3wN1z9x**

Brazil Time (GMT-3)

9:45

Digital Pathology
Chair: Dr. Ángel Cruz

West auditorium

Processing multi-expert annotations in digital pathology: a study of the Gleason 2019 challenge
Presenter: Adrien Foucart, Université Libre de Bruxelles, Belgium.

A supervised subtype differentiation learning for building invariant features of non-small cell lung cancer in a latent space of a Variational Autoencoder
Presenter: Fabian Cano, Universidad Nacional de Colombia, Colombia.

Toward unbounded open-set recognition to say "I don't know" for glomerular multi-lesion classification
Presenter: Paulo Chagas, Federal University of Bahia, Brazil.

Detecting micro-metastases in the sentinel lymph node by characterizing micro-environments
Presenter: Leidy Molano, Universidad Nacional de Colombia, Colombia.

Effect of a diffractive grid applied to laryngeal images with squamous cell carcinoma tumor
Presenter: Jacilene Martins Medeiros, Federal University of São Carlos, Brazil.

Heart
Chair: Dr. Fernando Arambula

East auditorium

Full multi resolution active shape model for left ventricle segmentation
Presenter: Eduardo Galicia, Universidad Nacional Autónoma de México, Mexico.

Exploring the left ventricular chamber dynamics in echocardiography images
Presenter: Daniel Jara-Hurtado, Universidad Nacional de Colombia, Colombia.

Unsupervised classification of dimension-reduced principal component scores from persistent atrial fibrillation electrograms
Presenter: Asif Nadim, University of Leicester, UK.

A multidirectional electrical stimulator with two isolated channels
Presenter: Lizandra Sá, University of Campinas, Brazil.

How cold waves influence LDL cholesterol levels? A regional study for Campinas, São Paulo, Brazil
Presenter: Júlia De Lázari, UNICAMP, Brazil.

11:00

Keynote Talk
Chair: Dr. Leticia Rittner

West auditorium

Keynote Speaker: Dr. Alexandre Falcão
Talk: *"Human-machine interaction for medical image analysis based on convolutional neural networks"*

12:00

Lunch

13:00

E-health and AI II
Chair: Dr. Norberto Malpica

East auditorium

Pain assessment of individuals with Parkinson's disease
Presenter: Luanne Cardoso Mendes, Federal University of Uberlândia, Brazil.

Application of conditional GAN models in optic disc/optic cup segmentation of retinal fundus images
Presenter: Tales Henrique Carvalho, Federal University of Itajubá, Brazil.

Bone quality classification in DXA images using pyradiomics and machine learning
Presenter: Mailen Gonzalez, UNCPBA, Argentina.

Automatic evaluation of human oocyte developmental potential from microscopy images
Presenter: Denis Baručić, Czech Technical University, Czech Republic.

Clustering of derivative and integrative p-wave features for Bayès Syndrome detection
Presenter: Lorena Gisela Franco, Universidad Nacional Tecnológica, Argentina.

Biosignals
Chair: Dr. Ernesto Moya

West auditorium

Entropy of motor unit activity and surface electromyogram in an isometric force task
Presenter: Ellen Zambalde, University of Campinas, Brazil.

A non-contact SpO2 estimation using a video magnification technique
Presenter: Jorge Brieva, Universidad Panamericana, Mexico.

Gait analysis: determining heel-strike and toe-off events
Presenter: Cicero Ferreira Fernandes Costa Filho, Universidade Federal do Amazonas, Brazil.

Characterizing Parkinson´s disease from gait dynamics using chaos descriptors
Presenter: David Ricaurte, Universidad Nacional de Colombia, Colombia.

A recurrent approach for predicting Parkinson stage from multimodal videos
Presenter: John Archila, Universidad Industrial de Santander, Colombia.

14:15

Chair:
Dr. Gabriela Castellano
Dr. Richard Frayne

West auditorium

Clinical Session
Success stories on engineer/clinician partnerships

Adriano de Oliveira Andrade– Federal University of Uberlândia
Luiza Maire David Luiz - Federal University of Uberlândia
Gabriel Pereira Escudeiro – Fluminense Federal University

Rickson Coelho Mesquita – University of Campinas
Lígia dos Santos Roceto Ratti – University of Campinas

Elizabeth Condliffe – University of Calgary
Rahul Udasi – Trexo Robotics

15:45

Chair:
Dr. Leticia Rittner

West auditorium

Closing Ceremony
and
Awards

16:15

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