



The Medical Image Analysis Lab at SFU

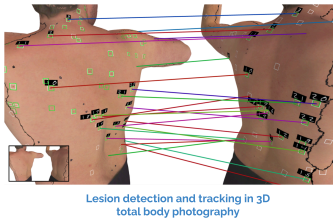
PI: Ghassan Hamarneh

www.MedicalImageAnalysis.com

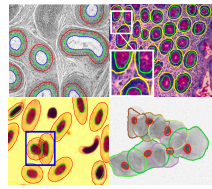


Mission: Advancing the frontiers of medicine and biology through innovative research and the specialized training of future leaders in AI-driven medical image analysis

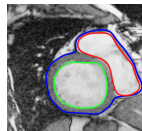
Highlights: Established in 2003 • Over 330 peer reviewed publications and 4 patents • Trained 11 postdocs, 30 PhD, 30 MSc, 70+ BSc students • \$4M+ in lab funding • 100+ datasets and software packages with 70k+ downloads • 28 best theses, best papers, and other recognitions • Teaching undergraduate and graduate biomedical (image) computing and advanced medical image analysis • Media coverage by local and international outlets



Lesion detection and tracking in 3D total body photography



Microscopy image analysis



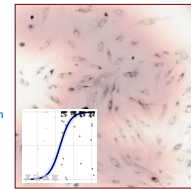
Cardiac MRI segmentation

SPECT
Nanoscapy
MRI CT
SMLM
STED PET
Dermoscopy
Microscopy
Ultrasound
DOT
X-Ray

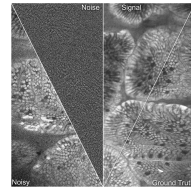
Biomedical Imaging



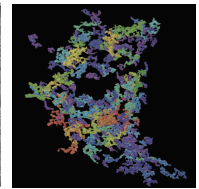
Lung segmentation in X-ray



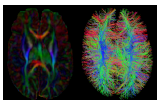
SARS-CoV-2 drug efficacy and infection detection in fluorescence microscopy



Denoising colorectal confocal Laser endomicroscopy



Detecting mitochondria-ER contacts in STED



Connectome analysis

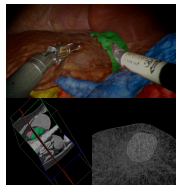
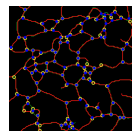
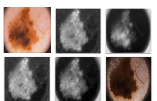


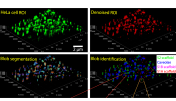
Image-guided robotic surgery



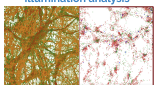
Endoplasmic reticulum network analysis



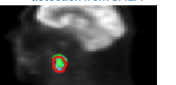
Color and illumination analysis



Caveolin-1 protein assemblies detection from SMLM



DNA-PAINT analysis of synaptic proteins



Lesion segmentation in PET

Diffusion MRI
EEG OCT
Spatial-Omics
Deep Learning
Visualization
Registration
Image Processing
Computer Vision
Classification
GenAI
Segmentation
Artificial Intelligence
Semi/weak/self-supervision
Explainable AI
Network Analysis
User interaction
Diagnostics
Oncology
Prognosis
Connectomics
Dermatology
Health
MSK
Patient Management
Cardiology
Forecasting
Pathology
Surgical Guidance
Treatment Planning
Neuroimaging
Biological Discovery
AgriTech & Plant Health

Computational Techniques

Health Applications

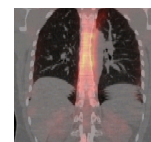
Ethical • Robust • Generalizable • Efficient • Trustworthy • Fair • Unbiased • Accurate • Automated • Explainable



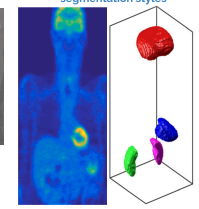
Anatomical tree analysis



Discovering the variance in segmentation styles



SPECT-CT 3D image registration



Organ segmentation in PET

Funding Sources



Industrial Collaborators



Academic Connections



Clinical Partners



Get in Touch

Open to collaborations with industry, academics, and healthcare facilities. Recruiting motivated students and researchers.



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