



Weimiao YU PhD

Head,
Computational & Molecular Pathology Lab (CMPL)

Dr. Yu obtained his Ph. D from the National University of Singapore (NUS), majoring in image processing and machine vision. Subsequently, he joined A*STAR as a post-doctoral research fellow in the Imaging Informatics Division of the Bioinformatics Institute (BII). He moved to IMCB as a Research Scientist at the Central Imaging Facility in 2010. Currently, he heads the CMPL at IMCB. His research topics are computational image analysis and quantitative imaging informatics. Dr. Yu has established close ties with local and international collaborators. In order to enhance biological discovery, his research integrates methodologies from multiple fields, such as image processing, kernel machine learning, and computer vision techniques. In the past few years, he has successfully secured grants for his research. He has developed a number of algorithms/software packages for various biological projects. He also established a number of external collaborations with different industry partners. To enhance the application of machine learning and AI in clinical diagnosis/prognosis, he co-founded a biotech company known as A!maginostic Pte. Ltd. He established a joint lab of excellence between A!maginostic and IMCB for immunodiagnosis at the tissue level. The platform allows researchers, clinicians and pharma to profile the patient immune signature for the purpose of diagnosis, prognosis and drug response study.



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Laurent GOLE ^{PhD}

Senior Research Fellow,
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Dr. Laurent Gole obtained his PhD in Biophysics at the University of Lyon, France. As a Senior Research Fellow in IMCB, he develops Computer Vision algorithms and Artificial Intelligence models for a wide range of project from use inspired to translational research working with both academic and industrial collaborators. His work resulted in a number of commercialized software and patents, notably on Circulating Tumor Cells Detection, Collagen Fibers Quantitative Analysis, DNA fibers detection and Measurements, Nuclei segmentation and Quality Control of Histopathology Whole slide images. His current research focuses on the development of computational analysis of multiplex fluorescence images for the characterization of tumour initiating cells niche in triple negative breast cancer and machine learning driven recurrence prognosis



Kokhaur ONG PhD

Research Fellow,
Computational & Molecular Pathology Lab (CMPL)

Dr Kokhaur Ong is a Research Fellow at the Institute of Molecular and Cell Biology (IMCB). The overarching theme of his research is Bio-image Quantitative Analysis. During his PhD at the Universiti Sains Malaysia and University Teknologi Malaysia, Kokhaur developed a novel outlier detection algorithm, MRI intensity signal standardization and a quantile-based classification method to study the characteristics of white matter lesions (WML) in FLAIR magnetic resonance imaging (MRI), which are important for understanding brain disease. In particular, he helps neurologists to quantify and extract WML characteristics for biological interpretation. Following his PhD Kokhaur started to apply his expertise in biological image analysis to digital pathology and molecular imaging at the Institute of Molecular and Cell Biology. His work at IMCB now covers a broad range of research topics from fundamental studies of image computation algorithms, image feature analysis, machine learning for applications including neurite tracking and quantification application, collagen fiber detection, Quantitative 3D analysis of cell migration behavior, Analysis of liver cancer cells on immunohistochemistry (IHC) images, Prostate cancer cell analysis based on multiplex fluorescence images, and a Digital pathology image annotation collaboration platform. Currently, Kokhaur is developing human-machine interaction applications related to pathology research.



Malay SINGH ^{PhD}

Research Fellow

Computational & Molecular Pathology Lab (CMPL)

Dr. Malay Singh's research interest covers bio-image processing/quantification, computer vision, and machine learning. He has a Bachelor's degree in Information Technology from Indian Institute of Information Technology-Allahabad, India. He obtained his PhD in Computer Science for his study "Automated Image Based Tools for Digital Pathology" at National University of Singapore. His PhD thesis encompasses Computer Vision and Machine Learning problems in Digital Pathology. It included developing automatic feature extraction and classification methods to solve object detection, object classification and image segmentation problems in histopathological tissue images. Malay joined IMCB in May 2018 and has been working on various projects encompassing automated quantification/analysis in breast and prostate histopathological tissue images. He also works with various academic collaborators implementing automated analysis/quantification of phase contrast and fluorescence microscope images. In his spare time, Malay enjoys distance running on the road and trail in and around Singapore.



Hao HAN MSc

Senior Bioinformatician

Computational & Molecular Pathology Lab (CMPL)

Han Hao obtained his Master's Degree in Bioinformatics at the National University of Singapore, Singapore. As a Senior Research Fellow in IMCB, he works on large scale multiomics data in clinical and translational research by development or customization of algorithms, software, and pipelines for computational pathology and bioimage informatics.



Xinmi HUO MSc

Research Officer

Computational & Molecular Pathology Lab (CMPL)

Xinmi obtained her Master's Degree from Nanyang Technological University in 2018, majoring in Computer Control and Automation. Before, she received her Bachelor's degree from Huazhong University of Science and Technology. Xinmi joined the Institute of Molecular and Cell Biology (IMCB) as a Research Officer in 2019. Her research focuses on Machine Learning, Computer Vision in biomedical image analysis. She is currently working on two projects which aim at developing AI solutions for the diagnosis of breast cancer and prostate cancer, respectively, using histopathology images.



Longjie Li MSc

Research Officer

Computational & Molecular Pathology Lab (CMPL)

Longjie obtained his Bachelor's degree (B.Eng.) from Nanjing University of Aeronautics and Astronautics, China and Master's degree (M.Sc.) from Nanyang Technological University, Singapore. He joined IMCB in September 2018 and is now working on two projects including skin tissue immune cell profiling and automatic DNA fiber detection and quantification. His research interests include medical image processing, machine learning and computer vision.



David YOUNG ^{PhD}

Visiting Scientist

Computational & Molecular Pathology Lab (CMPL)

David is a pediatric neurologist conducting whole mouse brain image processing research as a Visiting Scientist in the CMPL while a post-doc in the Stephan Sanders Lab at the University of California, San Francisco (UCSF). His interest is in building brain atlases to discover the precise localization of where, when, and how neuropsychiatric diseases develop, particularly neurodevelopmental disorders such as Autism Spectrum Disorder (ASD). He is currently using tissue clearing techniques and light sheet microscopy for high-throughput imaging of intact mouse brains. He has developed the [MagellanMapper](#) software for whole brain automated cellular detection in these images, annotation, and 3D reconstruction and optimization of brain atlases to quantify regional differences across development in ASD models. In his spare time, he and his wife enjoy finding new forests to hike in and around Singapore.