

5TH DIGITAL PATHOLOGY & AI CONGRESS: ASIA

TOKYO, JAPAN
2-3 April 2019



#DigiPathGE

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Global Engage is pleased to announce that the **5th Digital Pathology & AI Congress Asia 2019** will be taking place in Tokyo, Japan on the 2nd & 3rd of April 2019.

This highly respected event is a part of our Digital Pathology series with over 200 yearly attendees. The 5th Digital Pathology & AI Congress Asia 2019 aims to bring together professionals from the field of pathology to give talks on digital pathology and all its current topics and advancements, as well as to foster learning and provoke conversations in all matters related to the subject area.

This year our congress will have a special focus on artificial intelligence and its use in pathology together with presentations on medical image analysis and computational pathology among others. To complement the excellent speaker line up, we will also have over 5 hours of networking sessions, panel discussions that will explore the new aspects of this field as well as a diverse exhibition room filled with solution providers showcasing their latest technologies.

EXPERT SPEAKERS
INCLUDE



SYLVIA ASA

Professor, University of Toronto, Canada



ICHIRO MORI

Professor, University of Health & Welfare, Japan



BRIAN LOVELL

Professor, The University of Queensland, Australia



SAROJ MISHRA

Professor, Sanjay Gandhi Postgraduate Institute of Medical Science, India



YUKAKO YAGI

Director of Pathology, Memorial Sloan Kettering Cancer Center, USA



LEE HWEE KUAN

Senior Principal Investigator, A-STAR, Singapore



**JUAN ANTONIO
RETAMERO DÍAZ**

Pathologist, Granada University Hospital, Spain



NEELAM DOSHI

Associate Professor, Bond University, Australia

CONFERENCE SYNOPSIS

DAY 1

STREAM 1

Trends in Digital Pathology

- Contemporary issues and barriers of adopting digital pathology
- Emerging technology revolving digital pathology
- Regulatory overview in digital pathology
- Quality assurance, control and improvement
- Implementation of digital pathology in training and research
- Digital pathology: benefits, barriers and future implication

STREAM 2

Computational Pathology & Artificial Intelligence

- Computational methodologies in digital pathology
- Approaches and scientific challenges in computational pathology
- Development of tools in computational pathology
- AI and machine learning
- Whole slide imaging: acquisition, processing, archiving and retrieval
- Cloud computing / storage solutions

DAY 2

STREAM 1

Digital Image Analysis

- Challenges and Solutions
- Latest Development in DIA
 - 3D imaging
 - Lens - free Scanning
 - Holographic Imaging
- User interfaces
- Pattern Recognition & annotation Tools
- Algorithm Development
- Image Analysis Algorithms
- Image processing, quality & scanning speed

STREAM 2

Digital Pathology Applications & Research Case Studies

- User experience
- Telepathology
- Diagnostic studies
- Tissue-based research
- Digital biobanking
- Technological advances

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CONFIRMED SPEAKERS



WAEAL AL-ZOUGHBI
Physician – Scientist, Medical
University of Graz, Austria



YUKAKO YAGI
Director of Pathology,
Memorial Sloan Kettering
Cancer Center, USA



LEE HWEE KUAN
Senior Principal Investigator,
A-STAR, Singapore



JUN XU
Professor, Nanjing China
University, China



ULYSSES G. BALIS
Director, Division of Pathology
Informatics, University of
Michigan, USA



HANRY YU
Professor, Department of
Physiology, Yong Loo Lin
School of Medicine, National
University of Singapore,
Singapore



ICHIRO MORI
Professor, International
University of Health &
Welfare, Japan



BRIAN LOVELL
Professor, The University of
Queensland, Australia



**JUAN ANTONIO
RETAMERO DÍAZ**
Pathologist, Granada
University Hospital, Spain



ZHONGXI ZHENG
Professor, Pathology
Laboratory, West China
Hospital, China



ANDREY BYCHKOV
Director of Digital Pathology,
Kameda Medical Center, Japan



SYLVIA L. ASA
Professor, Laboratory of
Medicine and Pathobiology,
University of Toronto, Canada



SAROJ MISHRA
Professor, Sanjay Gandhi
Postgraduate Institute of
Medical Science, India



MATASAKA KAWAI
Professor, University of
Yamanashi, Japan



RAJENDRA SINGH
Associate Professor,
Department of Pathology &
Dermatology, Icahn School of
Medicine, Mt.Sinai, USA



**ERDENETSOGT
DUNGUBAT**
Associate Professor,
International University of
Health and Welfare, Japan



**MOHAMMAD FAIZAL
AHMAD FAUZI**
Associate Professor, Faculty
of Engineering, Multimedia
University, Malaysia



**PATHMANATHAN
RAJADURAI**
Doctor, Subang Medical
Center, Malaysia



NEELAM DOSHI
Associate Professor, Bond
University, Australia



**MATTIAS
RANTALAINEN**
Head of Group, Predictive
Medicine Research Group,
Karolinska University, Sweden



**TETSUYA
TSUKAMOTO**
Professor, Fujita University,
Japan



**SUSAN SWEE-SHAN
HUE**
Consultant Pathologist,
National University Hospital,
Singapore



TOMOO ITOH
Professor, Kobe University
Hospital, Japan



YU WEIMIAO
Head of Unit, Computational
Bioimage Analysis Institute,
A-STAR, Singapore



REEM EL BAHTIMI
Medical Director International
Dermopath Consult, United
Arab Emirates

08:00-08:50 Registration & Refreshments

08:50-09:00 **Global Engage Welcome Address and Morning Chair's Opening Remarks: Wael Al-Zoughbi**, Physician – Scientist, Medical University of Graz, Austria

09:00-09:30



**KEYNOTE ADDRESS:
YUKAKO YAGI**

Director of Pathology, Memorial Sloan Kettering Cancer Center, USA

Future Direction of Digital & Computational Pathology

Pathology imaging involves conversion of tumor tissue samples from glass slides to digital images to improve diagnosis while providing an infrastructure for Computational Pathology. The move to a fully digital workflow will allow this enhancement of diagnosis through computer-augmented diagnostic algorithms. Once pathology slides are digitized, morphometric analysis allows the application of mathematical modeling to analyze the histologic features. Machine learning can then be applied to derive more data from the slides, and computational analysis allows the development of algorithms to improve efficiency of slide review, calculate numerical data, and merge pathology data with molecular, clinical or other large data sets. The criteria for diagnosis can thus be made more objective, based on the use of deep learning. AI as a digital assistant will revolutionize diagnostic pathology and research. It will enable pathologists to be faster, more efficient, and more accurate by supplanting subjective with objective criteria. New technologies and testing the newest technologies for enhanced digital microscopy, such as three-dimensional histology, micro-computed tomography imaging, and rapid ex vivo whole tissue microscopy will take important role in Digital and Computational Pathology in future.

09:30-10:00



**KEYNOTE ADDRESS:
LEE HWEE KUAN**

Senior Principal Investigator, A-STAR, Singapore

Machine Learning Applications in Digital Pathology

Machine Learning and Deep Learning methodologies have been successfully used in digital pathology. Especially in the Deep Learning domain, algorithmic developments is very active. Indeed many algorithm developed for applications outside of digital pathology have been used successfully in digital pathology and hence there is little demand for computer vision methodologies development for digital pathology alone. However, factors affecting the success of applying Machine Learning and Deep Learning on digital pathology goes much beyond the advanced algorithm. In another word, data agnostic approach almost surely lead to failure. In this talk, I will discuss and share some of our experiences in working together with clinicians, learning the domain and how we prepare the data for successful applications of advanced machine learning and deep learning application.

10:00-10:30

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10:30-11:30 Morning Refreshments

11:30-12:00

PANEL DISCUSSION:

Recognising Significance and Barriers of AI Usage in Pathology

The possibilities of artificial intelligence revolutionising the field of pathology is irrefutable, as it makes workflow more efficient and increases productivity in disease diagnosis. However, the implementation of AI has become an issue with limitations in technology in terms of data insufficiency, image quality, standardisation of imaging, data synchronising process and much more. AI is still in its stage of infancy with simple digitised image analysis of using algorithms, data mining, structuring and other menial use. For this reason, the true extent of AI and its benefits have not been fully recognised among pathologists. In this session, the potential of AI and its implications in DP will be discussed.



JUN XU (Chair)

Professor, Nanjing China University, China



WAEAL AL-ZOUGHBI

Physician – Scientist, Medical University of Graz, Austria

12:00-12:25

TRENDS IN DIGITAL PATHOLOGY

Track Chair: Wael Al-Zoughbi, Physician – Scientist, Medical University of Graz, Austria



ULYSSES G. BALIS

Director, Division of Pathology Informatics, University of Michigan, USA

Title TBC

COMPUTATIONAL PATHOLOGY & ARTIFICIAL INTELLIGENCE

Track Chair: Jun Xu, Professor, Nanjing China University, China



HANRY YU

Professor, Department of Physiology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Development of AI - Based Robust Digital Pathology Approached for Liver Diseases Classification

Accurate assessment of liver diseases such as fibrosis and NASH suffer from the data variations of the sampling error, staining and imaging heterogeneity in variable clinical lab settings. Experienced pathologists deal with such variations by comparing

12:00-12:25

Continued



ICHIRO MORI

Professor, International University of Health & Welfare, Japan

Issues in international WSI full double-check system, from the experience of Health Evaluation and Prevention Center preparation in Vietnam

- We are planning to open Health Evaluation Center in Vietnam with full double check of pathology diagnosis from Japan using WSI.
- One of the biggest issues is language. We are planning English base HIS and pathology LIS while we cannot find Japanese company who has running pathology LIS in English.
- We are going to check cytology, so how to make cytology remote double check is big issue.

12:25-12:50

12:00-12:25



BRIAN LOVELL

Professor, The University of Queensland, Australia

Automated Digital Pathology and Detecting Glomeruli on Renal Direct Immunofluorescence

This talk will summarise the outcomes of our 8-year collaboration with Sullivan and Nicolaidis Pathology on the commercial automation of several major tests — soon to be deployed globally. I describe the scanning system and the huge benefits achieved by this approach. In the second half of the talk I focus on the use of Artificial Intelligence (AI) and Deep Learning. There is high demand to develop computer aided diagnostic techniques for this new digitized pathology data. The ability to extract effective information from digital slides, which serves as fundamental representations of the prognostic data patterns or structures, provides promising opportunities to improve the accuracy of automatic disease diagnosis. AI can be used to analyze images by providing a better interpretation of the detailed information in digital pathology. We introduce a new benchmark dataset for Detecting Glomeruli on renal Direct Immunofluorescence (DGDl) to advance this field of research.

12:25-12:50

12:50-13:20

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12:50-13:20

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13:20-14:20

Networking Lunch

14:20-14:45



JUAN ANTONIO RETAMERO DÍAZ

Pathologist, Granada University Hospital, Spain

Complete Digital Pathology for Primary Diagnosis, Two Years on: The Experience at Granada University Hospitals, Spain

Complete digital pathology and whole slide imaging (WSI) for primary histopathology diagnosis is currently in use in few laboratories across the world. We describe the methodology adopted and resulting experience at Granada University Hospitals (GUH), Spain, which comprises two teaching and two peripheral district general hospitals. Digital pathology was implemented, creating a fully digital multisite network. All histopathology glass slides generated for routine diagnosis were digitized at x40 using the Philips IntelliSite Pathology Solution, that includes an Ultra-Fast Scanner (UFS) and an Image Management System (IMS). All hematoxylin and eosin (H&E) stained preparations, as well as immunohistochemistry (IHC) and histochemistry slides were digitized. The existing sample tracking software and IMS were integrated to allow data interchange by means of Health Level 7 (HL7) protocol. A total of over 115,000 specimens have been signed out using digital pathology as primary means of diagnosis. This comprises in excess of 500,000 digitized glass slides. The scanning error rate during the implementation phase was below 1.5%, and subsequent slide production optimization rendered this rate negligible. Since implementation, GUH pathologists signed out 21% more cases per year on average. Digital pathology is an adequate medium for primary histopathology diagnosis. Successful complete caseload digitization relies on existing sample tracking and integration

14:20-14:45



RAJENDRA SINGH

Associate Professor, Department of Pathology & Dermatology, Icahn School of Medicine, Mt.Sinai, USA

Reliability and Authentication of Data: Key for Building AI Based Tools and Algorithms

There is a lot of hype about artificial intelligence (AI) and deep learning. There are significant anticipated outcomes and possibilities of changing the present workflows in all areas of medicine. Many organizations are attempting to gather open access data or participate in grand challenges in order to supply their armamentarium of machine learning tools. The key to building true clinically relevant models and algorithms that can predict patient outcomes, management, or prognosis is having access to a large amount of patient data. Big data movements are being amassed at many institutions and conglomerate networks. The only hope of building large data sets is when multiple institutions and organizations find a way to share their data as no single institution would have enough diverse data that would help build tools that can be used worldwide. The innate variation of each institution by itself could cause modeling failures when isolated models are built and transferred to other institution data. Gaining access to high quality big data sources, especially open access, will need to have shared data governance, accuracy, and dependability. Open access platforms with deidentification or anonymization will need to provide these principles to support such deliverables. Web based platforms will allow for collaborative annotations made on the data, which will also need to be verified; in order to produce viable models for real clinical

14:20-14:45

of the information technology infrastructure. Rapid and reliable scanning at 40x equivalent has made possible the transition to a fully digital workflow. Digital pathology associated to efficiency gains in the pre- and analytical phases and creates the foundation for the adoption of computational pathology.



ERDENETSOGT DUNGUBAT

Associate Professor, International University of Health and Welfare, Japan

Telepathology - in Mongolian Steppe and Its New Direction

Past (History): In the late 2000s we started an International static Telepathology project in Mongolia at very first time (about 580 cases) along with a consultation service with Pathology Institute at Basel University Hospital in Switzerland (total of 390 cases). This was through simple standardized digital camera-microscope set (by DEZA Project) and store and forward technology (SST & UNFPA Mongolia project). This is the foundation of our current Tele-Pathology practice model. **Present:** Just like many academic institutions worldwide we are tending to use whole slide imaging for remote diagnosis, utilising by Japanese investigators at the National Pathology center of Mongolia. Mongolian e-Medicine Center NGO, The centre's aim is to contribute with: Development and implementation of E-Health solutions and services that realize the potential in Mongolian health sector. (Hip US-Tele screening project of newborns; Millennium Challenge Corporation project in Mongolia for cervical and breast cancer screening; Master service providing under USRAD agreement

14:45-15:10

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15:10-15:40

14:20-14:45

practice. Developed algorithms for an atomic pathology practice, research, or education can be shared, trained, and validated in crowd sourced datasets with high variance for reliable modeling. Building such an innovative, interactive, and intuitive workflow will be the first step in fulfilling the role of pathology becoming the center of personalized medicine.



MOHAMMAD FAIZAL AHMAD FAUZI

Associate Professor, Faculty of Engineering, Multimedia University, Malaysia

Cancer Diagnosis & Prognosis in Digital Pathology

Digital pathology incorporates the acquisition, management, sharing and interpretation of pathology information in a digital environment. With the advent of whole slide imaging, the field of digital pathology has gained considerable attention, and is currently regarded as one of the most promising avenues of diagnostic medicine. Deep learning, or more specifically, deep convolutional neural network, is a machine learning algorithm that has also gained a lot of attention recently due to their ability to achieve state-of-the-art accuracy. In this talk we will present our work in utilising deep learning in the diagnosis and prognosis of breast carcinoma. For diagnosis, we employ the deep convolutional neural network to detect and localize tumor regions in Hematoxylin and Eosin (H&E) images of breast carcinoma, which will provide reliable platform for tumor grading. For prognosis, we utilised the network to classify cells according to their staining strength in Estrogen Receptor (ER) image, which is one of the hormone receptor positive factors recognized as a marker for which women with breast cancer would respond to hormonal treatment. Our proposed network is able to provide good and reliable performances despite a limited training dataset.

14:45-15:10

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15:10-15:40

15:40-16:25 Afternoon Refreshments

16:25-16:50



PATHMANATHAN RAJADURAI

Doctor, Subang Medical Center, Malaysia

Title TBC

16:25-16:50



ZHONGXI ZHENG

Professor, Pathology Laboratory, West China Hospital, China

AI for Pathology: Towards Automated Biomarkers Analysis in Breast Cancer

The biological characteristics of the tumor are used to estimate prognosis and select appropriate therapy for patients with breast cancer. The advent of molecular technology has incorporated new Biomarkers along with immunohistochemical and serum Biomarkers. Immunohistochemical markers are often used to guide treatment decisions, to classify breast cancer into subtypes that are biologically distinct and behave differently. In this paper we will describe a novel deep learning system developed for automatically analyzing four major IHC markers: KI-67, ER, PR, and HER2, we will also provide the information of utilizing this system into clinical practice.

16:50-17:00 Chair's Closing Remarks

08:00-08:50 Refreshments

Track Chair: **Andrey Bychkov**, Director of Digital Pathology, Kameda Medical Center, Japan

09:00-09:30



**KEYNOTE ADDRESS:
SYLVIA L. ASA**

Professor, Laboratory of Medicine and Pathobiology, University of Toronto, Canada

When Digital Pathology Becomes Pathology: Vision 2020

Pathology is being transformed by the disruptive technology of digital scanning that creates whole slide images. While slow to be adopted, the reality of this new digital pathology world was already in play for primary diagnosis in Toronto in 2011.

Over the last few years, the workflow of a world without glass slides and microscopes has been the focus of many studies. The requirements for clinical use include either recreating or integrating the many advances that have been made by laboratory information systems to facilitate case handling, prioritization, data collection and reporting. Artificial intelligence algorithms using image analysis provide quality assurance as well as quantitative results and ultimately will assist in interpretation but must be incorporated in a way that enhances quality and expedites case completion in a cost-effective way. This presentation will imagine "A day in the life of a pathologist" in the 2020 world of digital pathology.

09:30-10:00



**KEYNOTE ADDRESS:
SAROJ MISHRA**

Professor, Sanjay Gandhi Postgraduate Institute of Medical Science, India

Title TBC

10:00-10:30

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10:30-11:30 Morning Refreshments

PANEL DISCUSSION:

Implementation of Open Source Software for Enhanced Image Analysis

One of the major setbacks in digital pathology is the apparent lack of software platforms for the analysis of whole slide imaging. Commercial platforms not only are extremely steep in its price point, but also complex to be used. Left with these choices, pathologists often rely on visual estimation for biomarker analysis which is difficult and time consuming. With the development of open source software, image analysis is made much easier. In this session, we will discuss the types and potential of open source software, as well as determine the best software that is available in the market.

11:30-12:00



RAJENDRA SINGH (Chair)

Associate Professor, Department of Pathology & Dermatology, Icahn School of Medicine, Mt.Sinai, USA

DIGITAL IMAGE ANALYSIS

Track Chair: **Andrey Bychkov**, Director of Digital Pathology, Kameda Medical Center, Japan

12:00-12:25

MATASAKA KAWAI

Professor, University of Yamanashi, Japan

Applied Artificial Intelligence from a Pathological and Engineering Point of View and Data Management in the Next Generation Digital Pathology

Pathology confronts one of the greatest paradigm shifts in these several years; Digital pathology and associated artificial intelligence (AI). First, I introduce the past, present and future of Digital pathology and AI application in pathology from a pathological and engineering point of view. Subsequently, I present progress of deep learning-based AI system for histology and cytology at my facility. Second, I propose problems associated with data management in relation to digital pathology and AI development. Although data availability, maintenance and transfer become more and more important, little attention has been paid in an academic context. I suggest solutions to those problems from technical and ethical aspects.

15:10-15:40

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DIGITAL PATHOLOGY APPLICATIONS & RESEARCH CASE STUDIES

Track Chair:

12:00-12:25



NEELAM DOSHI

Associate Professor, Bond University, Australia

Digital Pathology Museum

Pathology is a visual field with traditional didactic teaching and supervised student access to museum specimens. However, limited student

access and the logistics to maintain museums impede students' learning. With advances in technology and internet, virtual methods can supplement pathology teaching. We present a cross over study to compare the effectiveness and student perception of a digital pathology museum versus real specimens. Ten digitalised specimens were compared to 10 real Perspex specimens by a spotter exam including clinical scenarios for second year medical students. The mean % test scores were similar for both museum methods with p value of 0.737. The Pearson's correlation co-efficient of 0.52 indicated a moderate positive association between the two museums. Students did equally well with both museums. Approximately 11%, 52% and 37% of participants would prefer digital, real and both museum methods. Digital pathology museums have the potential to pave the future of pathology learning enabling 24-hour access.

15:10-15:40

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12:55-13:55

Networking Lunch

**MATTIAS RANTALAINEN**

Head of Group, Predictive Medicine Research Group, Karolinska University, Sweden

The Prostate Cancer Image Epidemiology Project: Towards Model – Based Histopathology
Histopathological assessment of prostate

biopsies is the main mode to detect presence of cancer and to identify clinically relevant cancer. However, there is a shortage of pathology expertise and assessments suffer from high inter-assessor variability, causing both over- and under-treatment that can have severe consequences for individual patients. In this project we develop models for histopathology image classification of prostate cancer biopsy slides using deep convolutional neural networks. We address two problems: (1) detection of cancer and (2) Gleason score classification. The study is based on a large population-based cohort, including >80,000 biopsies. Here we report preliminary results from 8,400 whole slide images (>4 million tiles). Our results indicate a high accuracy for detection of presence of cancer in biopsies (AUC=0.99, independent test set), and an ability to perform Gleason score classification with good accuracy. The results suggest that AI-based decision support may be of importance in future clinical cancer diagnostics.

13:55-14:20

**SUSAN SWEE-SHAN HUE**

Consultant Pathologist, National University Hospital, Singapore

Merging of IHC images: A Digital solution to enhance pathological evaluation of lymphoma
Immunohistochemistry (IHC) is common

ancillary testing routinely used for clinical pathology diagnosis. Precise lymphoma diagnosis and subtyping often require the integration of a large panel of IHC markers. However, the assessment of multiple IHC stained images by conventional glass slide microscopy is tedious and time-consuming. In addition, it is almost infeasible to achieve a quantitative assessment of antigen co-expression as well as to build a spatial correlation between different cell populations by naked eye inspection. Such information is often instrumental for an accurate lymphoma diagnosis. With the digitalization of the pathology slides, we have developed an image merging solution to facilitate IHC marker visualization and pathological diagnosis of lymphoma. Our solution is able to merge multiple IHC images and visualize different stain together. We also developed some quantification solutions, which provide pathologists additional information to enhance diagnosis.

14:20-14:45

**YU WEIMIAO**

Head of Unit, Computational Bioimage Analysis Institute, A-STAR, Singapore

Recognition of Mitotic Cell Nuclei in H&E Slides: How to Proceed with AI

Breast cancer is the commonest malignancy and the leading cause of cancer deaths in females. It can be broadly divided into non-invasive Ductal Carcinoma in situ (DCIS) and invasive malignancies with different subtyping. Cell proliferation is one of the key clinical pathology parameters for patient sample assessment, while it is a tedious and time-consuming step for visual investigation and manual counting. The rapid advancement of artificial intelligence and machine learning demonstrated a great potential in cancer patient diagnosis and treatment. In this talk, we will discuss how the AI and ML can help to improve this quantification.

14:45-15:10

**TETSUYA TSUKAMOTO**

Professor, Fujita University, Japan

Comparison of Fine-Tuning Deep Convolutional Neural Networks for Classification of Lung Cancer Types from Cytological Images

Accurate classification of lung cancer types

is indispensable to meet recent progress of chemotherapy. We have previously developed an automated classification scheme for lung cancers presented in microscopic images using a deep convolutional neural network (DCNN). In this study, we have evaluated the effect of fine-tuning using AlexNet, GoogLeNet, and VGG-16 DCNN architectures to improve accuracy of classification. AlexNet consists of 5 convolutional, 5 pooling, and 3 fully connected layers; the last layer was modified to classify 3 lung cancer types. Overall accuracy was 75.5%. GoogLeNet possesses 22 layers without fully connected layers with modification to output 3 cancer categories. Accuracy was as low as 70.8%. VGG-16 is constituted with 16 relatively simple layers and resulted in the best value of 76.8% in accuracy. Taking into account these data, fine-tuning, although depending on the architectures, could be useful for classification of lung cancer cytological images.

13:55-14:20

**TOMOO ITOH**

Professor, Kobe University Hospital, Japan

Validation Study on Lymphoma Diagnosis Using WSI

The digital pathology is an emerging technology, and its usage on routine practices is spreading

worldwide rapidly. Very recently, FDA allowed marketing of first whole slide imaging (WSI) system for digital pathology, which enables us to use the system even for primary diagnosis. This epoch-making achievement owes a lot to scientific evidences indicated that WSI is eligible for making accurate pathological diagnoses. However, those studies typically targeting small specimens alone and the cases requiring immunohistochemistry or special staining, such as malignant lymphoma, were excluded in many studies. This study was done to provide an evidence of usability of WSI diagnosis for primary diagnosis of malignant lymphoma compared to conventional glass slide diagnosis and optical microscope. As a conclusion, we were able to decide that WSI is applicable for primary diagnosis of malignant lymphoma, if we make diagnoses with combination of adequate clinical information, H&E morphology, and immunohistochemistries.

14:20-14:45

**WAEAL AL-ZOUGHBI**

Physician – Scientist, Medical University of Graz, Austria

How Digital Pathology Solves Problems in Academic Research

Tissue-based research in the era of

precision medicine should provide accurate information about Morphomolecular variables. Image analysis solutions can be applied to answer specific scientific questions. The ideal approach is that an expert with histopathological interpretation translates a scientific question to a mathematical formula to be computed and applied to a patch of tissue sections. Our interest in quantitative image analysis rose as a problem-based approach through collaborative projects. The continuous request from our colleagues and scientific researchers to quantify pathological findings—backed by critics from several reviewers to the subjective interpretation—motivated us to explore the Digital Pathology field and, so to say, to attempt to replace the semi-quantitative methods. A number of image analysis solutions will be discussed including a comparison between three image analysis solutions: Aperio, Definiens, and a locally developed solution called IQM. Besides, we will share our experience with validating and operating Multiplex immunohistochemistry (cancer immunology panel) and multispectral imaging technologies to help in cancer patient stratification.

14:45-15:10

**REEM EL BAHTIMI**

Medical Director International Dermopath Consult, United Arab Emirates

The Role of Digital Pathology in Dermatopathology

For over a century, the microscope has been the greatest tool for pathologist. Although, many modifications and improvements have been added to make it more ergonomic, none has changed the work of pathologist like digital pathology. Digital pathology has provided a new era for pathologist.

With the improvements of digital cameras, more and more pathologist now depends on them for measurement and documenting pathological criteria. Digital images have become the standard in many Dermatopathology practices, to document the findings and margins. In addition, it allows for offsite evaluation and diagnosis. Dermatopathology, is an ideal specialty for Digital pathology, as most specimens are entirely submitted in one block, so the area for evaluation is small and limited to one slide. This talk will address the correlation between digital pathology and microscopy in the field of Dermatopathology.

15:10-15:35

15:35-16:00

Invitation Out

16:00

Conference Close

POSTER PRESENTATIONS**MAKING A POSTER PRESENTATION**

Poster presentation sessions will take place in breaks and alongside the other bkout sessions of the conference. Your presentation will be displayed in a dedicated area, with the other accepted posters from industry and academic presenters. We also issue a poster eBook to all attendees with your full abstract in and can share your poster as a PDF after the meeting if you desire (optional). Whether looking for funding, employment opportunities or simply wanting to share your work with a like-minded and focused group, these are an excellent way to join the heart of this congress.

In order to present a poster at the congress you need to be registered as a delegate. Please note that there is limited space available and poster space is assigned on a first come first served basis (subject to checks and successful registration). We charge an admin fee of £100 to industry delegates to present, that goes towards the shared cost of providing the poster presentation area and display boards, guides etc. This fee is waived for those representing academic institutions and not for profit organisations.

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JUNE 13-14 2019 - NEW YORK CITY



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