

**Conferenceseries.com** 852<sup>nd</sup> Conference

# 9<sup>th</sup> World Digital Pathology & Pathologists Congress

December 05-06, 2016 Madrid, Spain

# Keynote Forum (Day 1)



## 9th World Digital Pathology & Pathologists Congress

December 05-06, 2016 Madrid, Spain

# Christian Munzenmayer

1 Fraunhofer Institute for Integrated Circuits IIS, Germany

#### An automated microscopy system for malaria diagnosis

A ccording to the World Health Organization (WHO), in 2015 there were an estimated 214 million cases of malaria (438000 deaths). Malaria is caused by parasites of five species, most importantly Plasmodium falciparum and P. vivax. Microscopic examinations, the recommended Gold standard are increasing (188 million microscopic examinations in 2012 globally). Therefore, Fraunhofer IIS is developing an automated microscopy system to support diagnosis of malaria. After automated detection of the smear with low magnification (2.5x) a configurable number of high-power fields (63x oil immersion) are acquired automatically. The detection algorithm starts with a custom threshold and morphologic detection step to extract possible plasmodia candidates. These candidate objects are afterwards automatically classified to separate non-plasmodia objects from plasmodia. For our system we evaluated two approaches. The first approach is based on a large variety of color and color texture features, automated feature selection and a support vector machine (SVM). The second approach is based on a deep learning scheme with convolutional neural networks (CNN). Both classifiers where trained with pre-annotated data from 44 slides-containing mostly P. falciparum and P. vivax. With the SVM we reached an overall accuracy of 95.4% (92.7% sensitivity/95.5% specificity). The CNN performed slightly better with an accuracy of 96.7% (94.0% sensitivity/96.8% specificity). Based on these results our system helps to diagnose malaria infections in a less tedious, more secure and even more objective process.

#### **Biography**

Christian Munzenmayer has completed his Doctorate from the University of Koblenz-Landau in 2006. Since 2000, he is with the Fraunhofer Institute for Integrated Circuits IIS, Germany. His primary research interests center on image and texture analysis, automated microscopy and digital pathology. He is the Head of the research group Medical Image Processing and Manager of the business field Digital Pathology and Laboratory Diagnostics. He is the author and co-author of over 60 publications in scientific journals and proceeding volumes and has been Reviewer for Medical Engineering and Physics.

christian.muenzenmayer@iis.fraunhofer.de

## 9th World Digital Pathology & Pathologists Congress

December 05-06, 2016 Madrid, Spain

### Marcio Alvarez-Silva Universidade Federal de Santa Catarina, Brazil

#### Advances in bone marrow transplantation

Since the first successful bone marrow transplant on a patient with aplastic anemia in 1972 by Dr. E. Donnall Thomas and colleagues using a chemotherapeutic drug cocktail that included busulfan and cyclophosphamide as the preparatory regimen, the technique has gained importance worldwide. It has become potentially curative for many neoplastic and nonmalignant disorders. Hematopoietic stem cell transplantation (HCT) using autologous or allogeneic hematopoietic progenitor cells has progressed and evolved because of the ability to apply new transplant concepts with this the therapy, such as umbilical cord blood transplantation (UCBT) and more recently, haploidentical donor transplants. These advances have allowed for a broader range of donors. In addition, new regimens with high-dose cyclophosphamide have therapeutic benefits for disorders such as aplastic anemia and multiple sclerosis. On the other hand strategies to graft-versus-host disease (GVHD) prophylaxis, such as high-dose post-transplantation cyclophosphamid is a viable alternative for patients lacking HLA-matched donors. Actually many strategies for GVHD prophylaxis are in course in many preclinical or clinical studies. Pitfalls, such as graft rejection, severe GVHD and patient immune suppression are becoming less harmful as the advances in the field progresses. Further the scientific investigation is leading to the discovery of more therapeutically effective strategies for HCT as a more efficient therapy.

#### **Biography**

Marcio Alvarez-Silva was graduated in Pharmacy at the Federal University of Rio de Janeiro and PhD in Sciences at the Federal University of Rio de Janeiro. He is currently a Professor at the Federal University of Santa Catarina and coordinates the Laboratory of Stem Cell and Bioengineering at the Department of Cell Biology, Embryology and Genetics.

marcio.alvarez@ufsc.br



**Conferenceseries.com** 852<sup>nd</sup> Conference

# 9<sup>th</sup> World Digital Pathology & Pathologists Congress

December 05-06, 2016 Madrid, Spain

# Keynote Forum (Day 2)



### 9th World Digital Pathology & Pathologists Congress

December 05-06, 2016 Madrid, Spain

# Dongfeng Tan

University of Texas MD Anderson Cancer Center, USA

#### Digital pathology: Update of digital pathology in practice in USA and China

Digital pathology practices in USA and China will be presented and discussed. It covers three tracks – clinical services and education and research topics. Examples and models of digital pathology practice will be shared, including international digital pathology consultation. Industry standards and their contributions to the advancement in patient care as well as integration of digital pathology into multi-disciplinary are to be discussed.

#### **Biography**

Dongfeng Tan has received his Medical training from Tongji Medical University (1978-1987) in China and Essen University (1987-1990) in Germany. He did his Postdoctorship at Columbia University Medical Center in New York (1990-1994). After Pathology Residency at Yale University Medical Center (1994 to 1998), he completed an Oncologic Surgical Pathology Fellowship at Memorial Sloan-Kettering Cancer Center in New York. He has joined Roswell Park Cancer Institute as an Assistant Professor of Pathology in 1999 and was promoted to an Associate Professor of Pathology at The University of Texas (UT) Health Science Center at Houston. He has joined the Faculty of The University of Texas MD Anderson Cancer Center in 2006 and he is currently a Professor of Pathology and Laboratory Medical Oncology at MD Anderson Cancer Center. He holds joint Professorship in more than 20 universities in the world. He is a Consultant at KingMed Diagnostics.

dongfengtan@yahoo.com