ABSTRACT BOOK
ABSTRACTS

24TH WORLD CONGRESS
OF DERMATOLOGY
MILAN 2019

A new ERA for global Dermatology
10 – 15 JUNE 2019
MILAN, ITALY

GLOBAL SKIN HEALTH

A DIGITAL DERMATOLOGY PLATFORM FOR REAL-WORLD STUDIES AND RESEARCH

Y C Goh [1] - H Y Liu [2] - J Liu [2] - J K L Wee [2]

Datamind, -, Singapore, Singapore [1] - Agency For Science Technology And Research, Government Of Singapore, Institute Of Infocomm Research, Singapore, Singapore [2]

Introduction: Recent advances in artificial intelligence present broad opportunities for disruptive innovation across industries. In particular, the application of accurate deep learning models on biomedical images has spurred the invention of digital platforms for assisting clinical care and disease diagnosis across medical domains where imaging plays a critical role.

Objectives: We aim to develop a digital platform, trained using deep learning models, to automate the accurate recognition of real-world facial skin images across common areas of interest, including skin dryness, texture, pigmentation (e.g. melasma, lentigo, ephelides) and facial dermatitis. We envision a digital platform that is deployable across mobile devices for real-world studies and research.

Materials and Methods: Facial skin images were collated from mobile devices of over 1200 participants across diverse age and ethnic groups in South East Asia under actual real-world conditions. A two-step approach to model development was applied. Image noise reduction and color enhancement methods were applied on the raw data before training with deep convolutional neural networks (adapted from the VGG 16 model framework comprising of 16 convolution layers, 5 max-pooling layers, and 1 soft-max layer).

Results: We utilized a two-step approach to develop accurate facial skin recognition models using deep convolutional neural network models. Our models achieved accuracies of up to 80% for the recognition of specific conditions, such as wrinkles and clogged pores, on images captured under real-world conditions using mobile devices.

Conclusion: We have developed a digital platform incorporating deep learning models for accurate recognition of a variety of skin conditions under real-world conditions. This platform is deployable on mobile devices and could be useful for real-world studies and research in dermatology.

24TH WORLD CONGRESS
OF DERMATOLOGY
MILAN 2019

International League
of Dermatological Societies
Skin Health for the World
ILDS

1885
Società Italiana di Dermatologia
(SIDeMaST)