

Foreword to Special Issue

It is my great pleasure to introduce a new issue of *Sensors & Transducers* journal, Vol. 234, Issue 6, June 2019, entitled ‘*Artificial Intelligence & Neural Networks*’.

This special issue contains selected and extended papers from the *1st International Conference on Advances in Signal Processing and Artificial Intelligence (ASPAI' 2019)*, which taken place on 20–22 March 2019 in Barcelona, Castelldefels, Spain.



Photo 1. ASPAI' 2019 Conference Participants.

Advances in artificial intelligence (AI) and signal processing are driving the growth of the artificial intelligence market as improved appropriate technologies are critical to offer enhanced drones, self-driving cars, robotics, etc. The two major factors enabling market growth are emerging artificial intelligence technologies and growth in intelligent signal processing.



Photo 2. Keynote speaker Dr. Alexander K. Seewald (*Seewald Solutions, Austria*).

Today, more and more sensor manufacturers are using machine learning to sensors and signal data for analyses. The machine learning for sensors and signal data is becoming easier than ever: hardware is becoming smaller and sensors are getting cheaper,

making Internet of things devices widely available for a variety of applications ranging from predictive maintenance to user behavior monitoring. Whether we are using sounds, vibrations, images, electrical signals or accelerometer or other kinds of sensor data, we can build now richer analytics by teaching a machine to detect and classify events happening in real-time, at the edge, using inexpensive microcontrollers for processing - even with noisy, high variation data.



Photo 3. Keynote speaker Prof. Steven Y. Liang (*Georgia Institute of Technology, Atlanta, USA*).

AI market is expected to reach USD 190.61 Billion by 2025 from USD 21.46 Billion in 2018, at a CAGR of 36.62 %. The market growth is driven by:

- Increasing adoption of cloud-based applications and services;
- Growing big data;
- Increasing demand for intelligent virtual assistants;
- Advances in signal processing.

The major restraint for the market is the limited number of AI technology experts. A new conference has been launched to fill this gap and provide a forum for open discussion and development of emerging artificial intelligence and appropriate signal processing technologies focused on real-world implementations by offering Hardware, Software, Services, Technology (Machine Learning, Natural Language Processing, Context-Aware Computing, Computer Vision and Signal Processing). The goal of the conference is to provide an interactive environment for establishing collaboration, exchanging ideas, and facilitating discussion between researchers, manufacturers and users.

The conference was organized by the *IFSA* – a professional association, which celebrates its 20th years anniversary in 2019, with media partners *IOS Press* (journal *Integrated Computer-Aided Engineering* (ISSN: 1069-2509) and *World Scientific* (*International Journal of Neural Systems* (ISSN: 0129-

0657) in technical cooperation with *IFSA Publishing S.L.*, Spain.

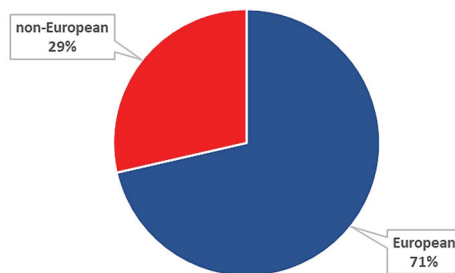
The ASPAI' 2019 conference has attracted many researchers and practitioners in the related fields, from around the world including 2 keynote speakers from a distinguished researchers of industry and academia from Austria and the USA who were invited to overview the progress in selected research trends. We have got more than 60 submissions, and after review, 41 papers have been selected for presentations (33 oral, 6 posters and 2 keynote presentations), submitted by authors from 21 countries (15 European and 6 non-European countries, see Table 1).

Table 1. Conference Statistics: Countries/Papers.

Country	Papers
Algeria	4
Brazil	1
China	6
Czech Republic	1
Denmark	1
Finland	1
France	7
Germany	4
Greece	1
Hong Kong (China)	2
Hungary	1
Italy	2
Norway	1
Oman	1
Russia	2
Slovakia	1
Spain	2
Sweden	4
Switzerland	1
Turkey	1
USA	1

We thank all authors for submitting their latest work, thus contributing to the excellent technical contents of the journal.

A limited number of the best articles from this journal issue will be selected for extension into book chapters for publication in our popular open access Book Series '*Advances in Artificial Intelligence: Reviews*' Vol. 2 and '*Advances in Signal Processing: Reviews*' Vol. 2, which will be published in 2020. Through the journal and book open access, the reach and impact of obtained and reported at the ASPAI' 2019 conference research results can be substantially increased.



The 2nd International Conference on Advances in Signal Processing and Artificial Intelligence (ASPAI' 2020) will take place in March 2020.

I hope you will enjoy this journal issue !

Sergey Y. Yurish
Editor-in-Chief