

**TSDAA 2015**

# Workshop on Time Series Data Analysis and its Applications (TSDAA 2015)

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## 1 The Workshop

The Workshop on Time series Data analysis and its Applications (TSDAA 2015) was held on November 17, 2015 in Sosokan Building, Yagami Campus of Keio University, Yokohama, Kanagawa, Japan as a part of the JSAI International Symposia on AI 2015 (JSAI-isAI 2015), sponsored by The Japanese Society of Artificial Intelligence (JSAI). Around 20–25 persons from eight different countries attended this one day workshop.

The main objective of this workshop was to provide an interdisciplinary forum for discussion of different approaches and techniques of time series data analysis and their implementation in various real life applications. As time series data is abundant in nature, an unifying approach is needed to bridge the gap between traditional multivariate time series data analysis with state-of-the-art methodologies of data mining from real life time series data (numerical and text) in various applications ranging from medical and health related, biometrics or process industry to finance or economic data analysis or weather prediction.

The workshop comprised of three sessions with 13 presentations including 3 invited lectures. The first session was on Confidence in Time-Series Prediction with 3 presentations and an invited lecture by Prof. Maciej Huk from Department of Computer Science and Management, Wroclaw University of Technology, Wroclaw in Poland. Prof Huk talked about the problem of prediction disbelief of time series applications and proposed methods of avoiding it. The second session was on Applications of Time series Analysis in Medical Data with 3 presentations and an invited lecture by Prof. Keun Ho Ryu from College of Electrical and Computer Engineering, Chungbuk National University, Cheongju, South Korea. Prof. Ryu delivered lecture on Geosemantics knowledge mining model framework in social network media. In the third and final session on Uncertainties in Time series data acquisition, Prof. Cedric Bornand from University of Applied Sciences, Western Switzerland HES-SO, delivered invited lecture on careful simultaneous acquisition of time series data from heterogeneous information sources. In addition, there were 4 presentations in the final session. All the

presentations were published by JSAI in The Proceedings of International Workshop on Time Series Data Analysis and its Applications (TSDAA 2015) ISBN : 978-4-915905-71-1 C3004(JSAI).

## 2 The Post-Workshop Proceedings

Four papers out of 10 contributory papers presented in the workshop has been selected for publication in this post-workshop proceedings after careful review by 3 PC members. One of the four papers deal with similarity measure for time series classification or clustering. Two papers presented applications of time series analysis in medical domain while the last one represented application of text time series processing in social media.

Yoshida et al. presented a comprehensive comparison of popular similarity measures for time series classification or clustering regarding computation time and classification accuracy by simulation experiment on 43 bench mark data sets. They then proposed a technique for improving the computation time of presently available popular algorithm DTW. Finally a new measure has been proposed for improvement of classification accuracy and its efficiency has been judged by simulation experiment. Nagayama et al. proposed an algorithm for extraction of infection propagation pattern from bacterial culture data in medical facility by using exhaustive search. Kamiyama et al. proposed an efficient algorithm for anomaly detection of periodic bio signals like ECG which can work well in real-time on computationally weak platforms like smart phones. The simulation experiments with MIT-BIH data set proves the efficiency of the new concept introduced in this paper. Ramamonjisoa proposed an algorithm for analyzing and summarizing comments regarding some events, disasters, political turmoil etc. over social media for a certain period of time. The proposed technique of analysis was found to be able to reveal some interesting hidden fact behind the event.

## Acknowledgement

Let us take this opportunity to convey our sincere acknowledgement to all the members of organizing committee of JSAI-isAI 2015 for their sponsorship and various supports in organizing the workshop. We would also like to acknowledge the great help of all the PC members of our workshop in reviewing the papers. We would like to convey our heartiest thanks to the invited speakers for coming all the way to Japan and delivering excellent talks and finally thanks to all the speakers for whom the workshop could achieve such a success.