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SPECIAL ISSUE

Big Data: Practical Applications

Point of View: Future Broadband Access Networks

Scanning Our Past: Edward (Ted) Both



SPECIAL ISSUE

BIG DATA: PRACTICAL APPLICATIONS

Edited by S. Haykin, V. Tresp, and J. A. Benediktsson

2085 Big Data Analysis for Media Production

By J. Blat, A. Evans, H. Kim, E. Imre, L. Polok, V. Ila, N. Nikolaidis, P. Zemčik, A. Tefas, P. Smrž, A. Hilton, and I. Pitas

|INVITED PAPER| The paper presents solutions to improve the integration of multiple data sources in media production and to understand their quality and content, which are useful to both support creative decisions on set (and near it) and enhance the postproduction process.

2114 Parallel Processing Systems for Big Data: A Survey

By Y. Zhang, T. Cao, S. Li, X. Tian, L. Yuan, H. Jia, and A. V. Vasilakos

|CONTRIBUTED PAPER| This survey categorizes the existing parallel data processing systems for big data and introduces representative projects in each category.

2137 Classification of Big Data With Application to Imaging Genetics

By M. O. Ulfarsson, F. Palsson, J. Sigurdsson, and J. R. Sveinsson

|INVITED PAPER| This paper investigates the classification of big data with a particular focus on classification of 3-D MRI images of the human brain in a genetic context.

2155 “Big Data Assimilation” Toward Post-Petascale Severe Weather

Prediction: An Overview and Progress

By T. Miyoshi, G.-Y. Lien, S. Satoh, T. Ushio, K. Bessho, H. Tomita, S. Nishizawa, R. Yoshida, S. A. Adachi, J. Liao, B. Gerofi, Y. Ishikawa, M. Kunii, J. Ruiz, Y. Maejima, S. Otsuka, M. Otsuka, K. Okamoto, and H. Seko

|INVITED PAPER| This article summarizes the activities and progress of the big data assimilation project for severe weather prediction and concludes with perspectives toward the post-petascale supercomputing era.

2180 Going Digital: A Survey on Digitalization and Large-Scale Data Analytics in Healthcare

By V. Tresp, M. Overhage, M. Bundschuh, S. Rabizadeh, P. A. Fasching, and S. Yu

|CONTRIBUTED PAPER| This paper takes a look at the current healthcare system and summarizes recent trends toward digitalization and large-scale data analytics in healthcare.

2207 Big Data for Remote Sensing: Challenges and Opportunities

By M. Chi, A. Plaza, J. A. Benediktsson, Z. Sun, J. Shen, and Y. Zhu

|INVITED PAPER| This paper analyzes the challenges and opportunities that big data can bring in the context of remote sensing applications.

2220 Some Comments on the Analysis of “Big” Scientific Time Series

By D. J. Thomson and F. L. Vernon, III

|CONTRIBUTED PAPER| This paper examines climate, geomagnetic, interplanetary, and seismic data closely and summarizes the resulting conclusions.

DEPARTMENTS

2074 EDITORIAL

By H. J. Trussell and V. Damle

2078 POINT OF VIEW

Future Broadband Access Networks
By F. Effenberger

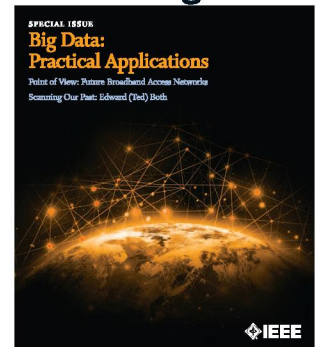
2082 SCANNING THE ISSUE

Big Data: Applications
By S. Haykin, V. Tresp, and J. A. Benediktsson

2250 SCANNING OUR PAST

The Remarkable Edward (Ted) Both, Australia’s Not-So-Well-Known Inventor
By C. Pay and M. Baumert

2257 FUTURE SPECIAL ISSUES/SPECIAL SECTIONS



On the Cover: Our cover image this month represents different types of global networks, such as communication networks or satellite networks, and the big data that they require.