

# IEEE Signal Processing

MAGAZINE

[VOLUME 32 NUMBER 3 MAY 2015]

## SPECTRUM SENSING FOR COGNITIVE RADIO

ACOUSTIC SCENE CLASSIFICATION

DEEP LEARNING IN SPEECH SYNTHESIS

VISUAL DOMAIN ADAPTATION

RESAMPLING METHODS

FOR PARTICLE FILTERING

PHASE RETRIEVAL IN OPTICAL IMAGING

PRECIPITATION MONITORING

OPTIMIZATION TOOLS FOR

CONFERENCE REVIEW MANAGEMENT

## FEATURES

### LEARNING AND CLASSIFICATION

#### 16 ACOUSTIC SCENE CLASSIFICATION

Daniele Barchiesi, Dimitrios Giannoulis, Dan Stowell, and Mark D. Plumbley

#### 35 DEEP LEARNING FOR ACOUSTIC MODELING IN PARAMETRIC SPEECH GENERATION

Zhen-Hua Ling, Shi-Yin Kang, Heiga Zen, Andrew Senior, Mike Schuster, Xiao-Jun Qian, Helen Meng, and Li Deng

#### 53 VISUAL DOMAIN ADAPTATION

Vishal M. Patel, Raghuraman Gopalan, Ruonan Li, and Rama Chellappa

### ADVANCES IN THEORIES AND METHODS

#### 70 RESAMPLING METHODS FOR PARTICLE FILTERING

Tiancheng Li, Miodrag Bolić, and Petar M. Djurić

#### 87 PHASE RETRIEVAL WITH APPLICATION TO OPTICAL IMAGING

Yoav Shechtman, Yonina C. Eldar, Oren Cohen, Henry N. Chapman, Jianwei Miao, and Mordechai Segev

### NEW APPLICATIONS

#### 110 A NEW APPROACH TO PRECIPITATION MONITORING

Hagit Messer and Omry Sendik

#### 123 SPECTRUM EXPLORATION AND EXPLOITATION FOR COGNITIVE RADIO

Jarmo Lundén, Visa Koivunen, and H. Vincent Poor

#### 141 SIGNAL PROCESSING AND OPTIMIZATION TOOLS FOR CONFERENCE REVIEW AND SESSION ASSIGNMENT

Nicholas D. Sidiropoulos and Efthymios E. Tsakonas

## COLUMNS

#### 4 FROM THE EDITOR

Impact Beyond Numbers  
Min Wu

#### 6 PRESIDENT'S MESSAGE

The IEEE Gives Our Society the "Thumbs Up"  
Alex Acero

#### 10 READER'S CHOICE

Top Downloads in IEEE *Xplore*

#### 13 SPECIAL REPORTS

Signal Processing Enhances Environmental Sensing  
John Edwards

#### 156 LECTURE NOTES

40 Years with the Ungerboeck Model: A Look at Its Potentialities  
Fredrik Rusek, Giulio Colavolpe, and Carl-Erik W. Sundberg

#### 162 SP TIPS&TRICKS

Practical and Useful Tips on Discrete Wavelet Transforms  
Rodrigo Capobianco Guido

## DEPARTMENTS

#### 8 SOCIETY NEWS

Intrinsically Hopeful

#### 168 DATES AHEAD