

# Digital Signal Processing

---

## Editor-in-chief

**E.E. Kuruoglu**  
ISTI-CNR, Pisa, Italy  
Email: ercan.kuruoglu@isti.cnr.it

## Area Editors

**O. Arikan**  
Bilkent University, Bilkent, Ankara,  
Turkey  
Sensor Array/Radar/Sonar and  
Adaptive Signal Processing

**G. Botella Juan**  
Complutense University of Madrid,  
Madrid, Spain  
System Design and Implementation

**J. Chambers**  
University of Leicester, UK  
Signal Processing for Communications

**H.K. Kim**  
Gwangju Institute of Science &  
Technology (GIST),  
South Korea  
Speech/Audio/Language  
Processing

**R. Molina**  
Universidad de Granada,  
Spain  
Image/Video Processing

## Editorial Board

**A. Akan**  
Katip Celebi University, Izmir,  
Turkey

**S. Aviyente**  
Michigan State University,  
East Lansing, MI, USA

**A. Basarab**  
Université Paul Sabatier,  
Toulouse, France

**A. Belouchrani**  
Ecole Nationale Polytechnique,  
Algiers, Algeria

**B. Boashash**  
University of Queensland, Brisbane,  
Australia

**M. Bugallo**  
Stony Brook University,  
New York, USA

**E. Cabal-Yepez**  
Universidad de Guanajuato,  
Salamanca, Mexico

**A. Chronopoulos**  
University of Illinois,  
Urbana-Champaign, USA

**M. Coates**  
McGill University, Montreal, Canada

**C. Debes**  
AGT International, Darmstadt,  
Germany

**X. Descombes**  
INRIA – Sophia Antipolis,  
France

**D. Donno**  
MINES, ParisTech, France

**O.N. Gerek**  
Anadolu University, Eskisehir, Turkey

**M.B. Guldogan**  
Qamcom Research and Technology,  
Stockholm, Sweden

**V. Hautamäki**  
University of Eastern Finland, Finland

**L. Huang**  
Shenzhen University, China

**R. Iskander**  
Wroclaw University of Technology,  
Poland

**M.G. Kang**  
Yonsei University, Korea

**K. Kayabol**  
Gebze Institute of Technology, Turkey

**P. Korus**  
AGH University of Science  
and Technology, Poland

**P. Laguna Lasaoa**  
Universidad de Zaragoza,  
Spain

**K.M. Lam**  
The Hong Kong Polytechnic University,  
Kowloon, Hong Kong

**M. Leszczuk**  
AGH University of Science and  
Technology, Poland

**X. Li**  
Beijing Institute of Technology,  
China

**J. Mateos Delgado**  
Universidad de Granada,  
Spain

**S. Nakajima**  
Technical University of Berlin, Germany

**A. Napolitano**  
Università di Napoli “Parthenope”,  
Italy

**V. Naranjo**  
Polytechnic University of Valencia,  
Spain

**K. Natesan**  
IBM Research, Thomas J. Watson  
Research Center, New York, USA

**H.Q. Ngo**  
Queen's University Belfast,  
UK

**D. Nuzillard**  
University of Reims, France

**V. Ornedo**  
Universitat de València, Spain

**M. Pereyra**  
University of Bristol, UK

**G. Pinero**  
Polytechnical University of Valencia,  
Spain

**K.N. Ramamurthy**  
IBM Thomas J. Watson Research Center,  
Yorktown Heights, NY, USA

**H. Richard**  
University Pierre & Marie Curie  
(UPMC), Paris, France

**L. Rugini**  
Università degli Studi di Perugia,  
Italy

**D.P. Ruiz Padillo**  
Universidad de Granada,  
Spain

**W. Samek**  
Fraunhofer Institute for  
Telecommunications,  
Berlin, Germany

**M. Shikh-Bahaei**  
King's College, London, UK

**H.C. So**  
City University of Hong Kong,  
China

**F. Šroubek**  
Institute of Information Theory and  
Automation AS CR, Prague,  
Czech Republic

**T. Sziranyi**  
Hungarian Academy of Sciences,  
Budapest, Hungary

**J. Troncoso Pastoriza**  
EPFL, Lausanne, Switzerland

**S.A. Tsaftaris**  
University of Edinburgh, UK

**B. Uchôa-Filho**  
Universidade Federal de Santa  
Catarina, Brazil

**H.F. Ugurdag**  
Özyegin University, Istanbul,  
Turkey

**J. Wang**  
Shanghai Jiao Tong University,  
China

**Z. Wang**  
Adobe Research, San Jose, CA, USA

**S. Weiss**  
University of Strathclyde, Glasgow, UK

**B. Yang**  
Jiao Tong University, Shanghai,  
China

**K. Yao**  
Microsoft Research, Seattle,  
Washington, USA

**Y.-S. Yoon**  
Hanwha Systems, South Korea

**G. Zhai**  
Jiao Tong University, Shanghai, China

**J. Zhang**  
Xidian University, Xi'an, Shaanxi, China

**H. Zheng**  
Guardant Health, Redwood City, CA,  
USA