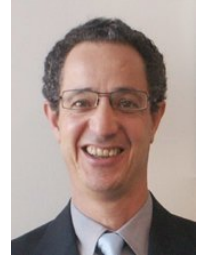



Recent Advances: Bootstrap for Signal Processing



Date: **Friday, April 27, 2012**
Time: 12:00pm - 1:00pm
Speaker: Dr. Abdelhak Zoubir, Professor, Technische Universitat Darmstadt, Germany
Agenda: Informal networking will begin at 11:30am.
Presentation will begin at 12:00pm.
Location: Rocky Rococo's Pizza
7952 Tree Lane (Beltline Hwy. at Mineral Pt. Rd.)
Madison, WI 53717 ... telephone: 608-829-1444 
Menu: Pizza buffet provided: \$5 for IEEE members, \$10 for non-members, **free for students.**
RSVP: Deadline: April 23. Go to https://meetings.vtools.ieee.org/meeting_view/list_meeting/11887
to register. Please send questions or difficulties to Mark Vincent at mvincent@ecw.org.

Non-member guests are always welcome!

Abstract

The use of more accurate models in signal processing applications such as communications, radar, sonar, biomedical engineering, speech and image processing and machine learning has become a fundamental requirement. With an improved accuracy the models have become more complex and inferential statistical signal processing required in parameter estimation and signal detection and classification, for example, has become intractable. The signal processing practitioner requires a simple but accurate method for assessing errors of estimates and answering inferential questions. Asymptotic approximations are useful only when enough data is available, which is not always possible due to time constraints, the nature of the signal or the measurement setting. In place of the formulae and tables of parametric and non-parametric procedures based on complicated mathematics and asymptotic approximations, tools such as the Bootstrap have revolutionized statistics in the last decade and have become powerful for solving complex engineering problems. It is the method of an engineer's choice for solving inferential signal processing problems, such as signal detection, confidence limits estimation and model selection, to mention a few. First, a brief history of the bootstrap methodology is given. We then discuss the basic principle underlying the bootstrap method for identically and independently distributed data and give several practical examples of its use. A comprehensive overview of the bootstrap for dependent data is also given with emphasis on spectral analysis. Examples with real-life measurements are given throughout the talk.

Biography

Abdelhak M Zoubir is a Fellow of the IEEE and IEEE Distinguished Lecturer (2010-2011). He received his Dr.-Ing. from Ruhr-Universität Bochum, Germany in 1992. He was with Queensland University of Technology, Australia from 1992-1998 where he was Associate Professor. In 1999, he joined Curtin University of Technology, Australia as a Professor of Telecommunications and was Interim Head of the School of Electrical & Computer Engineering from 2001 until 2003. In 2003, he moved to Technische Universität Darmstadt, Germany as Professor and Head of the Signal Processing Group. His research interest lies in statistical methods for signal processing with emphasis on bootstrap techniques, robust detection and estimation and array processing applied to telecommunications, radar, sonar, car engine monitoring and biomedicine. He published over 300 journal and conference papers on these areas. Dr Zoubir has co-authored the book titled Bootstrap Techniques for Signal Processing published by Cambridge University Press in 2004 and he Guest Co-Edited a Special Issue on the Bootstrap and Its Applications in the IEEE Signal Processing Magazine in 2007. Dr Zoubir co-authored the paper Detection of Sources Using Bootstrap Techniques that received the 2003 IEEE SPS Best Paper Award.

IEEE Entrepreneurs & Consultants Network, Madison Networking Meeting

Date: **Thursday, April 5, 2012**
Time: 12:00pm to 1:00pm
Purpose: Presentation, topic TBD.
Location: Madison Area Technical College (MATC **West Campus**)
302 S. Gammon Road (Across from West Towne Mall)
Madison, WI 53717 ... Telephone: 608-246-6100
Parking: Open parking, so come early to get a closer spot.
Process: Members are encouraged to make introductions, describe endeavors, and make request for: contacts in target companies, needs, resources. Bring your elevator speech and rolodex!
RSVP: Tim Chapman (PrettyGoodGUIs@TrueNym.NET)

Vol. 15, No. 4

Serving IEEE Members of South Central Wisconsin

April 2012

SECTION Meetings

The third Thursday of Jan.-May and Sep.-Dec. is reserved for a meeting to provide recent research, developments, trends and/or innovations in one of our membership's technical areas.

NETWORKING Meetings

The first Thursday of every other month is reserved for a meeting to provide networking opportunities for members who are consultants or entrepreneurs. Bring your elevator speech and rolodex!

Section Meeting Schedule for 2012 (schedule subject to change)



January 19, EU e-Freight Software Initiative

February 16, Patent Law

March 15, Reverse Electrowetting

April 27, Signal Processing, Distinguished Lecture, by Abdelhak Zoubir, at Promega

May 17, Electricity Nanogenerators
by Jerry Meyerhoff, at Promega

May 24, Annual Wind Farm Tour
busses start/end at UW Engineering Hall

June 21, TBD

September 20, TBD

October 18, International Trademarks
by Richard Abegglen, at Promega

November 15, TBD

December 20, TBD

Networking Meeting Schedule for 2012 (schedule subject to change)

February 2, TBD

April 5, TBD

June 7, TBD

August 2, TBD

October 4, TBD

December 6, TBD

Vol. 15, No. 4

Serving IEEE Members of South Central Wisconsin

April 2012

Selection of Officers

At the December monthly meeting, the IEEE Madison Section conducted its annual officer elections prior to the presentation:

IEEE Madison Section Sponsors

We thank the following sponsors for their support of the IEEE Madison



EMC, Product Safety & Environmental Testing
Since 1983

In response to popular request New 3-Day Format

*Keeping the same important concepts and material
presented in a more condensed format*



EMC by Your Design

An EMC Practical Applications Seminar and Workshop with a free 45 min. individual product design evaluation on April 20, take home proprietary computer program, expanded chapter on filter design, signal integrity, and signal return currents on PCB's at no extra charge



April 17-19, 2012 (Tues. - Thurs.)
Hilton Hotel, Northbrook, IL

We are offering a special
\$300 discount if you register by March 27, 2012

Classes fill quickly so register early

email cgorowski@dlsemc.com or call 847-537-6400
www.dlsemc.com/emcdesignseminar

2012 Officers

David Marca, Chair
dmarca@openprocess.com
Steve Schultheis, Vice Chair
ss@ieee.org
Charles Gervasi, Treasurer
cj@cgervasi.com
Mark Vincent, Secretary
mvincent@ecw.org
Tim Chapman, Web Master
prettygoodquis@truenym.net

2012 Members at Large

Dennis Bahr
bahr@inxpress.net
Mitch Bradt
bradt@wisc.edu
Craig Heilman
craig@bugsoft.com
Clark Johnson
clarkjohnson@cpinternet.com
Thomas Kaminski, ECN Chair
kaminski@matcmadison.edu
Sandy Rotter
rotter@ieee.org



EMC, Product Safety & Environmental Testing
Since 1983

Underwriters Laboratories has officially accepted D.L.S. Conformity Assessment, Inc., a subsidiary of D.L.S. Electronic Systems, Inc., into their Third Party Test Data Program. This program allows D.L.S. to test directly to UL standards for ITE, audio/video, medical devices and equipment, and laboratory test and measurement equipment for formal listing. Manufacturers will be able to complete their EMC, Safety and Environmental testing requirements all under one roof, saving them time and allowing them to speed their product to market. This program provides for a formal UL listing for U.S. and Canadian safety standards. Please go to www.dlsemc.com/ul for more information on this program.

IEEE Membership Level Upgrades

Those interested in upgrading their IEEE membership level should send their resumes or other information showing five years of significant performance in an IEEE-designated field to Charles J Gervasi (cj@cgervasi.com). Madison Section Board will attempt to find Senior IEEE members knowledgeable in the applicant's area of practice who may be able to provide references. You are invited to attend the informal networking portion of the monthly Section meetings (starting at 11:30am) to meet the Section Board members and discuss intentions.

2012 Section Board Members

David Marca	Chair
Steve Schultheis	Vice Chair
Charles Gervasi	Treasurer
Mark Vincent	Secretary
Timothy Chapman	Webmaster
Tom Kaminski	ECN Chair
Mitch Bradt	Member at Large
Clark Johnson	Member at Large
Dennis Bahr	Member at Large
Craig Heilman	Member at Large
Sandy Rotter	Member at Large

IEEE Madison Section Newsletter

Published 9 times per year (Jan.-May & Sep.- Dec.) by the Madison, Wisconsin Section of the Institute of Electrical and Electronic Engineers (IEEE), for its members in South-Central Wisconsin.

Online at <http://iee-msn.truenym.net/>

For address changes: notify IEEE headquarters at: <http://www.ieee.org/> or address-change@ieee.org. Editorial or comments contact: David Marca at: dmarca@openprocess.com.

Permission to copy without fee all or part of any material without copyright notice is granted provided the copies are not made or distributed for direct communication advantage, and title of the publication and its date appear on each copy. To copy material with a copyright notice requires specific permission. Please direct all inquiries or requests to the IEEE Copyright Office. Thank you.

About the IEEE

The Institute of Electrical and Electronics Engineers or IEEE (read I-Triple-E) is an international non-profit, professional organization dedicated to advancing technology innovation and excellence for the betterment of humanity. IEEE and its members inspire a global community through IEEE's highly cited publications, conferences, technology standards, and professional and educational activities. It has the most members of any technical professional organization in the world, with more than 300,000 members in around 150 countries. The IEEE consists of 38 societies, organized around specialized technical fields, with more than 300 local organizations that hold regular meetings. For more information, please visit: www.ieee.org.



Reach over 700 IEEE members in South-Central Wisconsin with information on your products and services every month with an ad in this newsletter.

Our members have professional interests in computers, power engineering, signal processing, communications, industry applications and a number of other technical fields

For more information, contact Mitch Bradt at 608-263-1085 or bradt@wisc.edu.

Per issue rates:	1 Time	2 Times	5 Times	9 Times
1/16 Page (3.5x1.125)	\$53	\$46	\$42	\$40
1/8 Page (7x1.125 or 3.5x2.25)	\$82	\$74	\$68	\$67
1/4 Page (7x2.25 or 3.5x4.5)	\$129	\$118	\$112	\$110
1/2 Page (7x4.5 or 3.5x9)	\$205	\$192	\$185	\$183
Full Page (7x9)	\$330	\$315	\$306	\$303