

# MATEO ABOY

www.mateoaboy.com

## CONTACT INFORMATION

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## EDUCATION

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**University of London, UK, EU (External Program)**  
MBA in International Management (In progress)

**Massachusetts Institute of Technology, MIT Sloan, MA, USA**  
Executive Certificate in Management & Leadership, 2007

**University of California-Berkeley, CA, USA**  
Graduate/Professional Coursework in Intellectual Property Law, 2007

**University of Vigo, ETSIT & MEC, Spain, EU**  
PhD in Electrical Engineering / Doctoral Dissertation in Biomedical, 2005  
MS (DEA) in Telecommunications Engineering, 2004  
Engineer degree in Telecommunications Engineering, (MEC), 2003  
Professional Engineer (PE) in the EU, COIT Registration No. 12684, 2003

**Portland State University, Maseeh, OR, USA**  
MS in Electrical & Computer Engineering, 2003/4  
BS in Electrical Engineering, 2002  
BS in Physics with Minor in Mathematics, 2002

### **Academic Honors:**

BS, High Honors; BSEE, High Honors, Outstanding Undergraduate Student Award, Outstanding Senior Project Award, National Engineering Honor Society, International Engineering Honor Society, Golden- Key Honor Society; MSECE, Outstanding Graduate Student Award; MS (DEA) & PhD, (Summa Cum Laude), Intel Faculty Fellow.

## PROFILE & VALUES

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Experienced professional with unique combination of technical and management capabilities.

Demonstrated innovation track record: over 60 scientific publications and 6 USPTO Patents (pending).

Experienced as a Entrepreneur, R&D Engineer, Program Director, Associate Professor, Independent Consultant: Founder/CEO & Principal Consultant of SIMPLEX, INC (US-based PSF), Co-Founder & VP of APDM Inc (US-based medial device firm), and Founder & Professional Engineer of MetoD Engineering & Architecture, SL (EU-based Architectural Engineering Firm).

**Professional Values:** entrepreneurship, innovation, creativity, high-performance teamwork, individual contribution, quality, talent, uniqueness, differentiation, vision, leading change, independence, strategy, ethics.

**Residency:** US Legal Permanent Resident (EB1-Outstanding Researcher), European Union Resident

**Languages:** English, Spanish, Galician, Portuguese, Italian (reading), German (beginning: 1st year-college)

## ACADEMIC APPOINTMENTS & EXPERIENCE: 5+ YEARS

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2008-Present	Associate Professor, Electrical Engineering & Renewable Energy Department, OIT, OR, US
2006-Present	Program Director, EE(T), Electrical Engineering & Renewable Energy Department, OIT, OR, US
2007-Present	Assistant Professor (External Joint Appointment), Biomedical Engineering, OGI, OHSU, OR, US
2006-Present	Professor “Titular” (equiv) (Joint Appointment), DSP Doctoral Program, ETSIT-Vigo, Spain, EU
2004/5-2008	Assistant Professor (Tenure-Track), Electrical Engineering & Renewable Energy Dept. OIT, OR, US
2003-2005	Instructor, Engineering Transfer Program, PCC, OR, US
2002-2003	Lab Instructor (TA), Electrical & Computer Engineering, Portland State University, OR, US

SELECTED COURSES RECENTLY TAUGHT		TERM & YEAR	UNIVERSITY
Electrical Engineering & Renewable Energy Engineering			
EE321	Electronics I	F'07	OIT
EE322	Electronics II	W'08	OIT
REE221	LabVIEW Programming	W'06, Su'06,W'07,Su'07,W'08	OIT
Mathematics & Statistics			
MATH465	Mathematical Statistics	W'06	OIT
Electronics Engineering (Technology)			
EET449	Digital Signal Processing	F'05, F'06, W'08	OIT
EET411/2	Communication Systems	S'08	OIT
EET407A	Statistical Signal Processing I	F'06	OIT
EET407B	Statistical Signal Processing II	W'06	OIT
EET463	Reliability & Quality Control	Su'06	OIT
EET358	Senior Project Proposal	F'06,W'07,S'07,F'07	OIT
EET458	Senior Project Design	F'06,W'07,S'07,W'08	OIT
EET468	Senior Project Evaluation	W'07,S'07, S'08	OIT
EET423	ASIC Design I	F'07,F'06	OIT
EET433	ASIC Design II	W'05	OIT
EET321/2	Laplace Transforms & Applications	W'05, W'06, W'07, F'07	OIT
EET331/2	Op-Amps & Applications	S'05, S'06, S'07, S'08	OIT
EET207	Digital Circuits & Systems	W'07	OIT
EET209	Intro to Amps & Semiconductors	F'06, F'07	OIT
EET210	Amps & Semiconductors Lab	F'06, F'07	OIT
EET235/6	Transistor Amplifiers	F'06, F'07	OIT
EET265/6	Amplifier Frequency Response	S'07	OIT
Doctoral Level Courses (Signal Processing & Biomedical Engineering)			
081T141a171	Advanced Signal Processing	S'07,S'08	ETSIT-Vigo
BME582/682	Nature & Analysis of Biomedical S	W'05 (Guest), W'08	OHSU

### RESEARCH SUMMARY:

The overall goal of my research is to develop novel engineering methods to help solve relevant biomedical problems. I'm particularly interested in problems involving the application of advanced statistical signal processing techniques to develop novel biomedical signal processing methods to analyze and extract information from physiologic signals that can help doctors make better diagnostic decisions and improve patient outcome. Additionally, I'm interested in the development of innovative medical devices & diagnostic systems that have the potential to improve patient treatment and quality of life while reducing the overall cost of healthcare. Within this area of research I'm currently working on five research lines: 1) development of novel methods of biomedical signal processing and analysis based on the Extended Kalman Filter and its generalizations to solve classical and new problems using a unified statistical approach; 2) development of novel methods for evaluation of antihypertensive treatment using ambulatory blood pressure monitoring; 3) interpretation of complex systems and nonlinear analysis techniques in the context of biomedical signal analysis and processing; 4) development of novel methods for prediction of fluid responsiveness and fluid optimization; and 5) development of innovative ambulatory medical devices and diagnostic systems that make use of novel algorithms to improve patient treatment and quality of life while reducing overall cost of healthcare.

## NON-ACADEMIC EXPERIENCE: 8+ YEARS

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### **APDM, INC, OR, USA (2007-PRESENT)**

**Profile:** Medical Devices Company focused on Ambulatory Parkinson's Disease Monitoring

**Title:** Executive Vice President/CFO & Co-Founder (2007-Present)

#### **Summary of Responsibilities:**

-C-level management. Strategy formulation for the development of the first Ambulatory Parkinson's Disease (PD) Monitor (APDM) & Intellectual Property Management. This portable device will enable therapy optimization and early diagnosis of PD.

### **SIMPLEX, INC, OR, USA (2005-PRESENT)**

[www.isimplex.com](http://www.isimplex.com)

**Profile:** Professional Services Firm specialized in integrated strategic & technical consulting.

**Title:** Founder/CEO & Principal Consultant (2005-Present)

#### **Summary of Responsibilities:**

-Provide integrated strategic consulting to technology firms: electrical, biomedical, biotech, medical devices.

-Strategic position analysis and development based on the delta model.

-Information brokerage, literature reviews, and prior-art searches.

-Technical & scientific consulting to assist in the preparation and prosecution of patent applications.

-IP strategy development & technology transfer consulting.

-Integrated scientific consulting: journal publication preparation, device validations, grant preparation.

-R&D contract work & Scientific & technical representations.

-Scientific research through the SIMPLEX RESEARCH LABS division.

**Recent Clients:** Tiba Medical, Inc (served as Chief Scientist from 2005-2007), OHSU (development of a PPV system), Innovatec SL (Representation, Strategy Development, Outsourcing Brokerage), ETSIT (device validation)

### **METHOD ENGINEERING & ARCHITECTURE, LLC, SPAIN, EU (2003-PRESENT)**

[www.metodweb.com](http://www.metodweb.com)

**Profile:** Architectural Engineering Firm based in the European Union.

**Title:** Partner, Director of Engineering, and Professional Engineer (2005-Present) / PE since 2003

#### **Summary of Responsibilities:**

-Practicing professional engineer: responsible for the design, development, and approval of ICT projects (telecommunication infrastructure projects). ICT projects are required to be designed by a Professional Engineer (PE) licensed by the COIT (PE Body) in Spain, EU. (8 buildings as principal PE since 2005.)

-Design, development, and management of ICT projects residential buildings and commercial spaces. (200+)

-General firm leadership & strategy development.

-Coordination of a team of Architects, Architectural Engineers, Construction & Industrial Engineers.

**Recent Clients:** Architecture, Construction and Development Firms; Greencross Inversiones S.L.; Fincas

Hércules S.L.; Viacor Inmobiliaria S.L.; Promociones Rimabel S.L.; Bitantium S.L.; Rio y Juncal Arquitectos S.L.

### **COMPLEX SYSTEMS LAB, DOERNBECHER CHILDREN'S HOSPITAL/BSP LAB, OR, USA (2000-05)**

**Profile:** Research Laboratory part of the Hospital ICU (Position funded by grants).

**Title:** DSP Engineer (2000-2005)

#### **Summary of Responsibilities:**

-Perform simulation and validation of DSP systems and algorithms for biomedical signals.

-Design automatic QRS and pressure detection algorithms.

-Design novel analysis techniques for biomedical signals.

-Design signal processing and analysis algorithms for biomedical signals.

-Perform spectral and time-frequency analysis of biomedical signals.

-Conduct clinical research, publish results in conferences and journals, and mentor research assistants

### **OFFICE OF INFORMATION TECHNOLOGIES, PORTLAND STATE UNIVERSITY, OR, USA (1999-2002)**

**Profile:** Information Technology Division of State University.

**Titles:** Project Coordinator & Lead System Administrator, CNS-LCT (April 01-January 2002)

Team Coordinator & Systems Administrator, CNS-LCT (June 00-April 01)

Computer & Network Technician, CNS-LCT (September 99-June 00)

**Summary of Responsibilities:** Manage new deployments, IT admin, support 600+ computers, team leader.

## PROFESSIONAL MEMBERSHIPS

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PE	Professional Engineer, COIT-Professional Engineering Society (COIT No. 12684)
Member	National Scientific Research Society
Member	IEEE-Institute of Electrical & Electronics Engineers
Member	IEEE Engineering in Medicine & Biology Society
Member	IEEE Education Society

## PROFESSIONAL SERVICE

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2008-	Associate Editor, IEEE Engineering in Medicine & Biology (EMBC) - 3 year appointment
2006-	Associate Editor, IEEE RITA Journal (IEEE Education Society)
2006-	Scientific Committee Member, IEEE RITA Journal (IEEE Education Society)
2006	Chair, EEG Modeling & Processing Session, IEEE Engineering in Medicine & Biology C.
2006-08	Chair/President, IEEE Education Society (OR-Section)
2008	Scientific Program Committee, ICMB, 2008
2005-06	Officer, IEEE Education Society (OR-North Representative)
2006-	Reviewer, Elsevier Science/Academic Press
2006-	Reviewer, Computer Methods in Biomedicine
2006-	Reviewer, American Journal of Physiology-Heart and Circulatory Physiology
2005-	Reviewer, IEEE Transactions on Industrial Electronics
2003-	Reviewer, IEEE Transactions on Biomedical Engineering
2003-	Reviewer, IEEE EMBS Magazine
2005-	Reviewer, Medical Engineering and Physics
2005-	Reviewer, Medical & Biological Engineering & Computing
2005-	Board of Advisors, Microelectronics Engineering Technology, PCC, OR
2005-	Board of Advisors, Electronics Engineering Technology, PCC, OR
2005-	Board of Advisors, Microelectronics, Chemeketa CC, OR
2005-	Board of Advisors, Electronics & Microelectronics Technology, CCC, OR
2001-02	President, International Electrical Engineering Honor Society (HKN), PSU-Chapter
2001-02	Corresponding Secretary, National Engineering Honor Society (TBP), PSU-Chapter

## AWARDS & HONORS

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2006	<b>Intel Faculty Fellow</b> , Recipient of the Intel Fellowship Grant 2006
2005	Full Member, National Scientific Research Society (Sigma Xi)
2004	Best Paper Award, InterSymp-2004 Conference (Baden-Baden 04)
2001	International Electrical Engineering Honor Society (HKN), Lifetime member
2001	National Engineering Honor Society (TBP), Lifetime member
2001	Golden-Key Honor Society, Lifetime member

## RESEARCH AFFILIATIONS

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2005-	SIMPLEX Research Labs, OR, USA
2005-	Oregon Institute of Technology, OR, USA
2007-	Innovatec Research Labs, Alcoi, Spain, EU
2003-	Bioengineering & Chronobiology Laboratories, ETSIT-Vigo, Spain, EU
2000-	Biomedical Signal Processing Laboratory, BSP Lab, PSU, OR, USA

## SELECTED GRANTS & DONATIONS

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National Science Foundation (NSF)

Title: Increasing Access and Diversity in Technology Programs | S-STEM (2007/8-2011)

Amount: \$596,214.00

M. Aboy (Co-PI), T. Sanders (PI), P. Kraft (Co-PI), D. Cornea-Hasegan (Co-PI)

Ministry of Industry & Commerce R&D Grant (Spain)

Title: Development of a Novel ABPM Monitor (2007)

Amount: \$21,220 for Phase I

M Aboy (Co-PI), D Cuesta (Co-PI)

Generalitat Valenciana (Spain)

Title: Development of a Novel Multipurpose Noninvasive Medical Monitor-Biomult (2007)

Amount: \$43,526, M Aboy (Co-PI), D Cuesta (Co-PI)

Intel Faculty Fellowship Grant

Title: Modular Curriculum in Electronics & Renewable Energy Engineering for Increased Access to Undergraduate Education in Oregon (2006/07 Academic Year)

Amount: \$40,000, M Aboy (PI)

Tektronix Donation

Title: Electronics Lab Equipment Donation (2006/07 Academic Year)

Amount: \$20,000, M Aboy (PI)

RFC Grant. OIT Internal Funding

Title: Laboratory Development & Equipment. Electronics & Physics(2006/7 Academic Year)

Amount: \$27,000, M Aboy (PI)

RFC Grant. OIT Internal Funding

Title: Electronics Laboratory Development & Equipment (2005/6 Academic Year)

Amount: \$6,000, M Aboy (PI) , R. Bass (Co-PI)

RFC Grant. OIT Internal Funding

Title: Electronics Laboratory Development & Equipment (2004/5 Academic Year)

Amount: \$13,000, M Aboy (PI)

Intel Curriculum Fellowship Grant

Title: Development of Web-Based Electronics Laboratories with Real Instruments

Amount: \$40,000 G Guran (PI), D Pocok (Co-PI), M Aboy (Co-PI/Developer)

Thrasher Research Fund

Title: Modeling intracranial pressure dynamics in pediatric traumatic brain injury (10/1/03-9/30/06)

Amount: \$319,882 , B Goldstein (PI), J McNames (Co-PI), W Wakeland (Co-PI), M Aboy (Researcher)

Friends of Doernbecher Foundation

Title: Physiologic state characterization in pediatric septic shock (9/1/03-6/30/03)

Amount: \$23,000, B Goldstein (PI), McNames (Co-Pi), M Aboy (Researcher)

Northwest Health Foundation

Title: Severe Traumatic Brain Injury in Children: Predicting the Future (1/1/01-10/1/03)

Amount: \$87,140, G Goldstein (PI), M Ellenby (Co-PI), R Sclabassi (Co-PI), J McNames (Co-PI), M Aboy (Researcher)

## SELECTED PEER-REVIEWED JOURNAL PUBLICATIONS

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**- A Statistical Model and Simulator for Cardiovascular Pressure Signals**

Staats, C; Austin, D; Aboy, M  
Journal of Engineering in Medicine, Volume: X, Issue: X 2008 (In Print)  
Page(s): Accepted (In print)

**- A Novel Method for Nonstationary Power Spectral Density Estimation of Cardiovascular Pressure Signals Based on a Kalman Filter with Variable Number of Measurements**

Tsui, KM; Zhang, S; Chan, WY; Aboy, M  
Medical & Biological Engineering and Computing, Volume: X, Issue: X 2008 (In Print)  
Page(s): Accepted (In print)

**- Complexity Analysis of Arterial Pressure During Periods of Abrupt Hemodynamic Changes**

Hornero, R; Aboy, M; Gomez, C; Hagg, D; Phillips, C  
IEEE Transactions on Biomedical Engineering, Volume: 55, Issue: 2, 2008  
Page(s): 797-801

**- Statistical modeling of cardiovascular signals and parameter estimation based on the extended Kalman filter.**

McNames, J; Aboy, M.  
IEEE Transactions on Biomedical Engineering, Volume: 55, Issue: 1, 2008  
Page(s): 119-129

**- Design and implementation of a portable physiologic data acquisition system**

Vincore, K.; Aboy, M.; McNames, J.; Phillips, C.; Goldstein, B.  
Pediatric Critical Care Medicine, Volume: 8, Issue: 6, 2007  
Page(s): 563-569

**- Pulse Morphology Visualization and Analysis with Applications in Cardiovascular Pressure Signals**

Ellis, T.; McNames, J.; Aboy, M.  
IEEE Transactions on Biomedical Engineering, Volume: 54, Issue: 9, 2007  
Page(s): 1552-9

**- A novel automatic image processing algorithm for detection of hard exudates based on retinal image analysis**

Sánchez CI, Hornero R, López MI, Aboy M, Poza J, Abásolo D.  
Medical Engineering Physics, Volume: June Issue: X, 2007  
Page(s): In press (online edition available)

**- Analysis of intracranial pressure during acute intracranial hypertension using Lempel-Ziv complexity: further evidence.**

Hornero R.; Aboy M.; Abásolo D  
Medical & Biological Engineering and Computing, Volume: 45, Issue: 3 2007  
Page(s): 229-239

**- Unsupervised Classification of Ventricular Extrasystoles using Bounded Clustering algorithms and Morphology Matching.**

Cuesta-Frau, D; Biagetti, MO.; Quinteiro, RA.; Mico-Tomos, P., Aboy, M  
Medical & Biological Engineering and Computing, Volume: 45, 2007  
Page(s): 229-239

**- Reliability and Accuracy of Heart Rate Variability Metrics versus ECG Segment Duration**

McNames; Aboy, M  
Medical & Biological Engineering and Computing, Volume: 44, Issue: 9, 2006  
Page(s): 747-756

- Interpretation of the Lempel-Ziv complexity measure in the context of biomedical signal analysis**  
Aboy M, Hornero R, Abasolo D, Alvarez D  
IEEE Transactions on Biomedical Engineering, Volume: 53, Issue: 11, 2006  
Page(s): 2282-8
- An Automatic Algorithm for Stationary Segmentation of Extracellular Microelectrode Recordings**  
Aboy, M; Falkerberg, JH.  
Medical & Biological Engineering and Computing, Volume: 44, Issue: 6, 2006  
Page(s): 511-515
- The Population RDH Index. A Novel Index and Graphical Method for Statistical Assessment of Antihypertensive Treatment Reduction, Duration, and Homogeneity**  
Aboy, M.; Fernandez, J.R.; Hermina, R.C.  
Blood Pressure Monitoring. Volume: 11, Issue: 3, 2006  
Page(s): 143-155
- An Automatic Beat Detection Algorithm for Pressure Signals**  
Aboy, M.; McNames, J; Thong, T.; Tsunami, D.; Ellenby, M. Goldstein, B.  
IEEE Transactions on Biomedical Engineering, Volume: 52, Issue: 10, 2006  
Page(s): 1662-1670
- Variability, Regularity, and Complexity of Time Series Generated by Schizophrenic Patients and Control Subjects**  
Honero, R.; Abásolo, D.; Jimeno, N.; Sanchez, C.; Poza, J.; J.; Aboy, M.  
IEEE Transactions on Biomedical Engineering, Volume: 52, Issue: 10, 2006  
Page(s): 210-218
- Complex Analysis of Intracranial Hypertension using Approximate Entropy**  
Honero, R.; Aboy M.; Abásolo, D.; Wakeland, W.; Goldstein, B.  
Critical Care Medicine, Volume: 34, Issue: 1, 2006  
Page(s): 87-95
- The Individual RDH Index. A Novel Vector Index for Statistical Assessment of Antihypertensive Treatment Reduction, Duration, and Homogeneity**  
Aboy, M.; Fernandez, J.R.; Hermina, R.C.  
Blood Pressure Monitoring. Volume: 11, Issue: 2, 2006  
Page(s): 69-78
- Adaptive Modeling and Spectral Estimation of Nonstationary Biomedical Signals Based on Kalman Filtering**  
Aboy, M.; Márquez, O.W.; McNames, J.; Hornero, R.; Thong, T.; Goldstein, B.  
IEEE Transactions on Biomedical Engineering, Volume: 52, Issue: 8, 2005  
Page(s): 1485-1489
- Interpretation of Approximate Entropy. Case Studies in the Analysis of Intracranial Pressure During Acute Elevations in Traumatic Brain Injury**  
Honero, R.; Aboy, M.; Abásalo, D.; McNames, J.; Goldstein, B.  
IEEE Transactions on Biomedical Engineering, Volume: 52, Issue: 10, 2005  
Page(s): 1671-1680
- Methodological Considerations in the Evaluation of the Duration of Action of Antihypertensive Therapy Using Ambulatory Blood Pressure Monitoring**  
Aboy, M.; Fernandez, J.R.; Hermina, R.C.  
Blood Pressure Monitoring. Volume: 10, Issue: 3, 2005  
Page(s): 111-115

**-Pulse and Mean Intracranial Pressure Analysis in Pediatric Traumatic Brain Injury**

Aboy, M.; McNames, J.; Wakeland, W.; Golstein, B.  
Acta Neurochirurgica (Suppl), Volume: 95 2005  
Page(s): 307-310

**- A Novel Algorithm to Estimate the Pulse Pressure Variation Index**

Aboy, M.; McNames, J.; Thong, T.; Phillips, C.R.; Ellenby, M. Goldstein, B.  
IEEE Transactions on Biomedical Engineering, Volume: 51, Issue: 12, 2004  
Page(s): 2198 - 2203

**- A Microcontroller-Based Portable Electrocardiograph Recorder**

Segura-Juarez, J.J.; Cuesta-Frau, D.; Samblas-Pena, L.; Aboy, M.;  
IEEE Transactions on Biomedical Engineering, Volume: 51, Issue: 9, 2004  
Pages: 1686 - 1690

**- Prediction of Paroxysmal Atrial Fibrillation by Analysis of Atrial Premature Complexes**

Thong, T.; Goldstein, B.; McNames, J.; Aboy, M.  
IEEE Transactions on Biomedical Engineering, Volume: 51, Issue: 4, 2004  
Page(s): 561-569

**- Pattern Matching Techniques Applied to Biomedical Signal Processing**

Cuesta-Frau, D.; Mico Tormos, P.; Novak, D.; Aboy, M.  
IIAS Transactions of Systems Research and Cybernetics Volume: 4, Issue: 1, 2004  
Page(s): 29-35

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**SELECTED BOOK CHAPTERS & PEER-REVIEWED CONFERENCE PUBLICATIONS**

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**- Neurologic Monitoring**

Goldstein, B.; Aboy, M.; Graham, A.  
Roger's Textbook of Pediatric Intensive Care

**- ICU Monitoring of Continuous Physiologic Signals - Engineering Aspects, Clinical Interpretation, and Future Directions**

Goldstein, B.; McNames, J.; Ellenby, M.; Ibsen, L.; Jacques, S.; Aboy, M.; Thong, T.; Phillips, C.  
Crit. Care Med, Current Concepts in Pediatric Critical Care, Volume: 1, Issue: 1, 2004  
Page(s): 201-229

**- Characterization of sample entropy in the context of biomedical signal analysis.**

Aboy, M.; Cuesta-Frau, D.; Austin, D.; Mico-Tormos, P.;  
IEEE Engineering in Medicine and Biology Society (EMBS), 2007.  
Proceedings of the 27th International Conference of the IEEE, Volume: 1, 2007  
Page(s): 5942-5

**- T-wave Alternans Analysis Improvement by Means of Curve Alignment Prior to Distance Calculation.**

Cuesta-Frau, D.; Biagetti, M.; Mico-Tormos, P.; Aboy, M.; Austin, D.; Quinteiro, R.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2007.  
Proceedings of the 27th International Conference of the IEEE, Volume: 1, 2007  
Page(s): 690-3

**- A Novel Approach to Pulse Pressure Variation**

Austin, D.; Staats, C.; Aboy, M.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2006.  
Proceedings of the 27th International Conference of the IEEE, Volume: 3, 2006  
Page(s): 1391-1393

**- Clustering of Intracranial Pressure Using Hidden Markov Models**

Novak, D.; Cuesta-Frau, D.; Aboy, M.; Goldstein, B.; Lhotska, L.  
EMCSR-17 European Meetings on Cybernetics and Systems Research, 2004

**- Morphology analysis of physiological signals using hidden Markov models**

Novak, D.; Lhotska, L.; Al-ani, T.; Hamam, Y.; Cuesta-Frau, D.; Mico, P.; Aboy, M.;  
Pattern Recognition, 2004. ICPR 2004. Proceedings of the 17th International Conference,  
Volume: 3, 2004  
Pages:754 - 757

**- A Novel Statistical Model for Simulation of Pressure Signals**

Aboy, M.; McNames, J.; Thong, T.  
European Association for Speech, Signal and Image Processing (EURASIP), 2004.  
Proceedings, 17th International EURASIP Conference BIOSIGNAL 2004, Volume:17  
Page(s): 364-367

**- Time-Delay Estimation between Arterial Blood Pressure and Intracranial Pressure Signals Based on Kalman Filtering**

Aboy, M.; Marquez, O.W.; McNames, J.; Cuesta-Frau, D.  
European Association for Speech, Signal and Image Processing (EURASIP), 2004.  
Proceedings, 17th International EURASIP Conference BIOSIGNAL 2004, Volume: 17  
Page(s): 355-357

**- Complex Analysis of Intracranial Hypertension in Traumatic Brain Injury using Approximate Entropy**

Hornero, R.; Abasolo, D.E.; Aboy, M.; Mcnames, J.; Goldstein, B.  
European Association for Speech, Signal and Image Processing (EURASIP), 2004.  
Proceedings, 17th International EURASIP Conference BIOSIGNAL 2004, Volume: 17  
Page(s): 15-17

**- Averaged Lomb Periodograms for Nonuniform Sampling**

Thong, T.; McNames, J.; Aboy, M.; Oken, B.  
European Association for Speech, Signal and Image Processing (EURASIP), 2004.  
Proceedings, 17th International EURASIP Conference BIOSIGNAL 2004, Volume: 17  
Page(s): 39-41

**- A Database of Oculographic Signals**

Cuesta-Frau, D.; Novak, D.; Aboy, M.; Brzezny, R.; Cerny, R.; Jerabek, J.  
European Association for Speech, Signal and Image Processing (EURASIP), 2004.  
Proceedings, 17th International EURASIP Conference BIOSIGNAL 2004, Volume: 17  
Page(s): 97-99

**- Designing Portable Biomedical Signal Recorders**

Cuesta-Frau, D.; Segura-Juarez, J.J.; Aboy, M.; Samblas-Pena, L.  
European Association for Speech, Signal and Image Processing (EURASIP), 2004.  
Proceedings, 17th International EURASIP Conference BIOSIGNAL 2004, Volume: 17  
Page(s): 155-157

**- Transient Pulse Morphology Analysis of Intracranial Pressure after Ventricular Drainage**

Aboy, M.; Crespo, C.; McNames, J.; Ellenby, M.; Goldstein, B.  
Society of Critical Care Medicine.  
Critical Care Medicine (Part 2 Suppl.), Volume: 31, Number: 12, 2003  
Page(s): 334

**- Evidence for Diminished Complexity During Acute Hypotension in Sepsis**

Aboy, M.; McNames, J.; Goldstein, B.  
Society of Critical Care Medicine.  
Critical Care Medicine (Part 2 Suppl.), Volume: 31, Number: 12, 2003  
Page(s): 229

**- Response Analysis of Intracranial Pressure to Changes in Respiratory Rate**

Levitte, G.; Aboy, M.; McNames, J.; Goldstein, B.  
Society of Critical Care Medicine.  
Critical Care Medicine (Part 2 Suppl.), Volume: 31, Number: 12, 2003  
Page(s): 333

**- Significance of Intracranial Pressure Pulse Morphology in Pediatric Traumatic Brain Injury**

Aboy, M.; McNames, J.; Cuesta-Frau, D.; Wakeland, W.; Thong, T.; Lai, S.; Gold  
IEEE Engineering in Medicine and Biology Society (EMBS), 2003.  
Proceedings of the 25th International Conference of the IEEE, Volume: 3, 2003  
Page(s): 2491-2494

**- Pulse Pressure Variation Estimation Based on Rank-Order Fitlers**

Aboy, M.; McNames, J.; Thong, T.; Phillips, C.R.; Ellenby, M.S.; Goldstein, B.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2003.  
Proceedings of the 25th International Conference of the IEEE, Volume: 3, 2003  
Page(s): 2435-2438

**- Paroxysmal Atrial Fibrillation Prediction Using Isolated Premature Atrial Events and Paroxysmal Atrial Tachycardia**

Thong, T.; McNames, J.; Aboy, M. Goldstein, B  
IEEE Engineering in Medicine and Biology Society (EMBS), 2003.  
Proceedings of the 25th International Conference of the IEEE, Volume: 1, 2003  
Page(s): 163-166

**- Morphology Analysis of Intracranial Pressure Using Pattern Matching Techniques**

Cuesta-Frau, D.; Aboy, M.; McNames, J.; Goldstein, B.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2003.  
Proceedings of the 25th International Conference of the IEEE, Volume: 3, 2003  
Page(s): 2917-2920

**- Biosignal Laboratory: A Software Tool for Complete Biomedical Signal Processing**

Cuesta-Frau, D.; Mico, P.; Aboy, M.; Novak, D.; Brezny, R.; Samblas, L.; Pastor, D.; Sancho, D.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2003.  
Proceedings of the 25th International Conference of the IEEE, Volume: 4, 2003  
Page(s): 3544-3547

**- Adaptive Comb Filter for Semi-Periodic Signals**

Cyrill, D.; McNames, J.; Aboy, M.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2003.  
Proceedings of the 25th International Conference of the IEEE, Volume: 3, 2003  
Page(s): 2439-2442

**- A New Resource for Independent and Blinded Assessment of QRS Detection Algorithms**

Tsunami, D.; McNames, J.; Aboy, M. Ellenby, M.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2003.  
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