MATEO ABOY

Cell: 503-729-8587 | **E**mail: mateoaboy@ieee.org
www.mateoaboy.com

Education

University of Vigo, ETSIT, Spain, EU
PhD in Electrical Engineering

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

Massachusetts Institute of Technology, Sloan, MA, USA
Executive Certificate in Management & Leadership: Technical Management
(Four MIT Sloan MBA-based courses: Strategy, Finance, Marketing, and Technical Management)

Stanford University, CA, USA
Materials Science and Engineering
Professional Certificate in Sustainable Energy Conversion and Storage
(Coursework: Photovoltaics, Fuel Cells, Energy Storage)

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

University of Vigo, ETSIT & MEC, Spain, EU
MS (DEA) in Telecommunications Engineering
Engineer degree in Telecommunications Engineering

Portland State University, OR,USA
MS in Electrical & Computer Engineering
BS in Electrical Engineering
BS in Physics with a Minor in Mathematics

Honors: BS, High Honors (Summa Cum Laude); BSEE, High Honors (Summa Cum Laude), Outstanding Undergraduate Student Award, Outstanding Senior Project Award, National Research Society (Full Member based on "Noteworthy Research Contributions"), National Engineering Honor Society, International Engineering Honor Society, Golden-Key Honor Society; MSECE (Summa Cum Laude), Outstanding Graduate Student Award; MS (DEA) & PhD - Doctorate (Summa Cum Laude), Intel Faculty Fellow (Intel Fellowship Award), US Permanent Residency awarded based on Scientific Extraordinary Ability & Outstanding Research Contributions (EB1).

Bar Admissions & Professional Licenses

Bar Admission to Practice Patent Law before the United States Patent & Trademark Office (USPTO)

Patent Agent, Registration Number 64040, United States Patent Office

Professional Engineer, Professional Engineering Society (COIT), Registration No. 12640

Profile

Experienced professional with unique combination of technical, managerial, and leadership capabilities

Demonstrated innovation track record: peer-reviewed papers, patents, and product commercialization.

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

US Legal Permanent Residency (EB1-Outsdanding Researcher) & European Union Resident.

Academic Appointments

2008-Pres. :: Department Chair, Electrical Engineering & Renewable Energy Department, OIT

2008-Pres. :: Associate Professor, Electrical Engineering & Renewable Energy Department, OIT

2009-Pres. :: Associate Professor (Research Professor), Management Department, OIT

2007-Pres. :: Associate Professor (External Joint Appointment), Biomedical Engineering Div, OHSU

2009-2009 :: Visiting Professor, Doctoral Program, ETSIT-U.Vigo

2006-Pres. :: Professor "Titular"(equiv) (Joint Appointment), DSP Doctoral Program, ETSIT-U.Vigo

2007-Pres. :: Research Professor (Joint Appointment), Polytechnic University of Valencia, ETSIT-U.Vigo

2006-2009. :: Program Director, EE(T), Electrical Engineering & Renewable Energy Department, OIT

2006-2008 :: Assistant Professor (External Joint Appointment), Biomedical Engineering, OGI, OHSU

2004-2008 :: Assistant Professor, Electrical Engineering & Renewable Energy Department, OIT

2002-2003 :: Lab Instructor, Electrical & Computer Engineering, PSU

Selected Academic Leadership & Service

2010-Pres. :: Patent Counsel, Office of Innovation & Technology Transfer, OIT

2009-Pres. :: Chair, ETM Task Force on Research, Innovation, and Technology Transfer, OIT

2009-Pres. :: Provost's Council, OIT

2009-Pres. :: ETM School Dean's Academic Council, OIT

2008-Pres. :: Department Chair, Electrical Engineering & Renewable Energy Department, OIT

2006-2007 :: President's Strategic Positionning Team, OIT

2006-2007 :: President's Applied Research Strategy Team, OIT

2006-2007 :: Executive Committee, Oregon Center for Health Professions, OIT

2006-2009 :: Chair, Program Director Committee, OIT-PDX

2006-2009 :: OIT Portland Strategic Team, OIT-PDX

2006-2009 :: Strategic Enrollment Management Committee, OIT-PDX

2006-2009 :: Program Director, Electronics Engineering Technology, EERE, OIT

Professional Memberships

PE Professional Engineer, (COIT) Professional Engineering Society (COIT No. 12684), Spain, EU

Member National Scientific Research Society

Member IEEE-Institute of Electrical & Electronics Engineers

Member IEEE Power & Energy Society

Member IEEE Engineering in Medicine & Biology Society

Member IEEE Education Society

Teaching: Selected Courses Recently Taught

Doctoral Level Courses

T141a173 | Patent Fundamentals for Researchers and Inventors | S09 | | ETSIT-U. Vigo

T141a171 | Advanced Statistical Signal Processing and Bootstrap Techniques | S07,S08,F09 | ETSIT-Vigo

T141a172 | Biomedical Signal Processing | 08-09 | ETSIT-U. Vigo

CSEE580/680 | Signals & Linear Systems | F08, W09 | OHSU

BME582/682 | Nature & Analysis of Biomedical | W05, W08, W09, F09 | OHSU

Electrical Engineering, Renewable Energy Engineering, and General Engineering

REE201 | Introduction to Renewable Energy | F09 | OIT

EE407 | Patent Fundamentals for Engineers and Managers | S08, S09 | OIT

EE407 | Advanced Signal Processing and Nonlinear Analysis | S10 | OIT

EE431 | Digital Signal Processing | W'10 | OIT

EE225 | Circuits III - Laplace Transforms & Applications | S08, F08, S09, F09, S10 | OIT

EE321 | Electronics I - Introduction to Amplifiers & Semiconductors | F07, F08 | OIT

EE323 | Electronics II - Transistor Amplifiers | W08, F09 | OIT

REE221 | LabVIEW Programming | W06, Su06,W07,Su07,W08, W09 | OIT

ENGR266 | Computer Programming for Engineers | W09 | OIT

ENGR407 | Senior Project | F09, W10, S10 | OIT

Mathematics and Statistics

MATH465 | Mathematical Statistics | W06 | OIT

MATH407 | Special Topics in Linear Algebra | S09 | OIT

Electronics Engineering (Technology)

EET449 | Digital Signal Processing | F05, F06, W08 | OIT

EET472 | Communication Systems | S08 | OIT

EET407 | Statistical Signal Processing and Data Analysis I | F06 | OIT

EET407 | Statistical Signal Processing and Data Analysis II | W06 | OIT

EET463 | Reliability & Quality Control | Su06 | OIT

EET358 | Senior Project Proposal | F06,W07,S07,F07 |OIT

EET458 | Senior Project Design | F06,W07,S07,W08 | OIT

EET468 | Senior Project Evaluation | W07,S07, S08 | OIT

EET423 | ASIC Design I | F07,F06 | OIT

EET433 | ASIC Design II | W05 | OIT

EET321 | Laplace Transforms & Applications | W05, W06, W07, F07,F08,F09 | OIT

EET373 | Op-Amps & Applications | S05, S06, S07, S08 | OIT

EET207 | Digital Circuits & Systems | W07 | OIT

EET209 | Intro to Amps & Semiconductors | F06, F07 | OIT

EET235 | Transistor Amplifiers | F06, F07 | OIT

EET265 | Amplifier Frequency Response | S07 | OIT

Professional Experience (Non-Academic)

ABOY & ASSOCIATES, PC | www.aboypatentlaw.com (2009-Present)
Profile: IP Engineering & Patent Law Firm (Professional Corporation).
Position/Title: Senior Partner | Patent Agent
Summary of Responsibilities:
-Expert Services: Expert Opinions in DSP, Biomedical Signal Processing, Medical Devices, and SSP.
-Strategy: Intellectual Property Strategy Development.
-Analysis: Conduction of Prior-Art Searches, Patentability Opinions, and Patent Portfolio Analysis.
-US Patent Preparation & Filing: Preparing & Filing Provisional, Utility, and Design Applications.
-US Patent Prosecution: Elections, Amendments, Office Actions, and RCE.
-US Continuations: Preparing & Filing Continuations, Continuations-in-Part and Divisionals.
-International Applications: Preparing & Filing PCT Applications & National Stage .
-Training & Education: Corporate training on innovation, patent fundamentals, development of patent strategy, university lecturing (Workshops on Patent Fundamentals for Engineers, Managers, & Entrepreneurs).
Principal Practice Areas: Signal Processing, Biomedical Signal Processing, Medical Devices, Electrical Engineering, Financial Engineering, Energy Engineering, and Renewable Energy

APDM, INC, OR, USA | www.apdm.com (2007-Present)
Profile: Medical Devices Company focused on Movement Monitoring Solutions
Position/Title: COO & CFO (2007-Present)
Summary of Responsibilities:
-Design, development, and commercialization of the Opal (TM) "The World's Most Advance Movement Monitor".
-C-level management, leadership & strategy formulation.
-Responsible for operations, corporate governance, and business strategy.
-Responsible for Intellectual Property Strategy and Implementation (Prosecution, License Agreements)
-Innovation and R&D.

ABOY FINANCIAL & ENERGY MARKETS | www.aboyfinancial.com (2007-Present)
Profile: Financial Time-Series Analysis and Energy Markets Blog/Newsletter.
Position/Title: Principal
Summary of Responsibilities:
-Newsletter/Blog focused on financial time series analysis, financial economics, and energy markets.
-Site devoted to evidence-based analysis of financial and commodity markets using statistical signal processing techniques.
-Analysis of setup conditions on commodity markets based on commercial activity (i.e. CFTC commitment of traders report).
-Nonlinear and complexity analysis of financial time series.
-Seasonality studies of commodity markets including energy markets.
-Seasonality analysis of major financial indices.

TIBA MEDICAL, INC, OR, USA | www.tibamedical.com (2003-2009)
Profile: Medical Devices Company
Position/Title: Design Engineer (2003), Senior Design Engineer (2004), Principal Engineer (2005), Chief Scientist (2006-2008), and Chief Scientific Advisor (2008-2009)
Summary of Responsibilities:
-Research & Development.
-Innovation Strategy.
-Intellectual Property Strategy Development.
-Clinical Device Validations (510k).
-Ambulatory Blood Pressure Monitoring System Product Definition and Design.
-Designed Signal Processing Algorithms for Ambulatory Blood Pressure Monitors (Ambulo 2400).
-Designed Signal Processing Algorithms for Actigraphy.

Professional Experience (Non-Academic) - Continuation

SIMPLEX, INC, OR, USA (2005-2008)
Profile: Professional Services Firm Specialized in Integrated Strategic & Technical Consulting.
Position/Title: Principal Consultant (2005-2008)
Summary of Responsibilities:
-Provide integrated strategic consulting to technology firms: electrical, biomedical, medical devices.
-Technical engineering consulting: product definition, DSP engineering, product validations.
-Strategic position analysis and development based on the delta model.
-Information brokerage, literature reviews, and prior-art searches.
-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.
Representative Clients: Tiba Medical, Inc (served as Chief Scientist from 2005-2008), OHSU (development of a PPV system), Innovatec SL (Representation, Strategy Development, Outsourcing Brokerage).

METHOD ENGINEERING, LLC, Spain, EU | www.metodweb.com (2003-2008)
Profile: Architectural Engineering Firm based in the European Union.
Position/Title: Partner and Professional Engineer (2005-2008) / Professional Engineer since 2003
Note: Currently serving on the Board and as an Emeritus Senior Partner
Summary of Responsibilities:
-General firm leadership & strategy development.
-Coordination of a team of Architects, Architectural Engineers, Construction & Industrial Engineers.
-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+)
Representative Clients: Architecture, Construction and Development Firms; Greencross Inversiones S.L; Fincas Hérculues 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, US (2000-04)
Profile: Research Laboratory part of the Hospital ICU (Position funded by grants).
Position/Title: DSP Engineer (2000-2004)
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 journas, and mentor research assistants.

OFFICE OF INFORMATION TECHNOLOGIES, Portland State University, OR, US (1999-2002)
Profile: Information Technology Division of State University.
Position/Title: 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 IT deployments.
-IT system admin.
-Supervise a team of 9 computer and network technicians.
-Support 600+ campus computers.

Research Summary: BSP

RESEARCH AREA: DSP, BIOMEDICAL SIGNAL PROCESSING, MEDICAL DEVICES

The overall theme of my research in this area 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. [For additional details visit: http://www.mateoaboy.com & http://www.apdm.com]

Research Summary: Signal Processing of Power Quality Disturbances

RESEARCH AREA: DSP of Power Quality Disturbances

This research area is devoted to the application of statistical signal processing techniques to create novel models for power quality disturbances such as voltage sags, flicker, and frequency variations. These models can be used for simulation of disturbances in assessment studies and as statistical models in state-space frameworks where parameters can be estimated by Extended Kalman Filters and other state-space estimation methods. Research areas include modeling, analysis, detection, quantification, and classification of power quality disturbances using statistical signal processing methods.

[For additional details visit: http://www.mateoaboy.com & http://www.oit.edu/ree]

Research Summary: Financial Economics & Energy Markets

RESEARCH AREA: FINANCIAL TIME SERIES ANALYSIS, COMMODITIES, ENERGY MARKETS

This research area is devoted to application of statistical signal processing and modeling techniques to analysis of financial and commodity markets. Specific research problems include: 1) The re-examination of the Efficient Market Hypothesis and competitive alternatives such as Lo's Adaptive Market Hypothesis, 2) Development of novel indicators to predict CFTC commitment of traders (COT) commercial buying and selling patterns in commodity markets & associated trading strategies, 3) Novel trading strategies and indicators for equity, futures, and bond markets based on advanced signal processing, statistical time series analysis, and complexity analysis techniques, 4) Examination of the complexity, nonlinear, chaotic, and fractal characteristics (e.g. the determination of the fractal dimension) of different financial markets and market conditions, and 5) Energy markets research including novel seasonality analyses.

[For additional details visit: http://www.aboyfinancial.com]

Research Summary: IP, Patent Valuation, Strategy & Innovation

RESEARCH AREA: INTELLECTUAL PROPERTY, STRATEGY, AND INNOVATION

This area of research is focused on intellectual property, competitive strategy, and innovation. I'm interested in research on intellectual property strategy, IP valuation, developing models and theoretical frameworks for examining IP strategy and early stage patent valuation, and preparing review articles on "recent patents" on particular methods and technology areas (patent landscape studies). In the field of strategy, I'm primarily interested in application of the Delta Model (Hax) to various firms currently achieving competitive advantage and its generalization.

[For additional details visit: http://www.aboypatentlaw.com]

Research Affiliations

2009- Aboy & Associates, PC, OR, USA

2007- APDM Inc, OR, USA

2005- EERE, Oregon Institute of Technology, OR, USA

2005- University of Valencia (Politécnica), Spain, EU

2003- Bioengineering & Chronobiology Laboratories, ETSIT-Vigo, Spain, EU

2000- Biomedical Signal Processing Laboratory, BSP Lab, PSU., OR, USA

Professional Service & Appointments

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

2006 Intel Faculty Fellow, Recipient of the Intel Fellowship Award & Grant

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

Selected Peer-Reviewed Journal Publications
Research Area: Biomedical Signal Processing, and Medical Devices

1. Pulse Pressure Variation: Where Are We Today?.
   Cannesson M, Aboy M, Hofer C, Rehman M.
   Journal of Clinical Monitoring and Computing, 2010
   Page(s): In Print

2. Automatic segmentation of long-term ECG signals corrupted with broadband noise based on sample entropy.
   Micó P, Mora M, Cuesta-Frau D, Aboy M.
   Computer Methods and Programs in Biomedical Engineering, 98, 2010
   Page(s): 118-129

3. An enhanced automatic algorithm for estimation of respiratory variations in arterial pulse pressure during regions of abrupt hemodynamic changes.
   Aboy M, Crespo C, Austin D.
   IEEE Transactions on Biomedical Engineering, Volume: 56, 2009
   Page(s): 2537-2545

4. A Novel Recursive Fourier Transform for Nonuniform Sampled Signals: Application to Heart Rate Variability Spectrum Estimation.
   Holland, A; Aboy, M.
   Med Biol Eng Comput. Volume: 47, Number: 7, 2009 Page(s): 1741-0444

5. 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: 46, Issue: 8, 2008
   Page(s): 789-797

6. Complexity Analysis of Arterial Pressure During Periods of Abrupt Hemodynamic Change
   Hornero, R; Aboy, M; Gomez, C; Hagg, D; Phillips, C
   IEEE Transactions on Biomedical Engineering, Volume: 55, Issue: 2, 2008
   Page(s): 797-801

7. 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

8. Can a simulation study of T-wave alternans (TWA) resolve whether TWA is T-wave amplitude dependent?
   Cuesta-Frau D, Aboy M, Biagetti M.
   Med Biol Eng Comput. 2009 Jan 31

9. Enhanced modified moving average analysis of T-wave alternans using a curve matching method: a simulation study.
   Cuesta-Frau D, Micó-Tormos P, Aboy M, Biagetti MO, Austin D, Quinteiro RA.
   Med Biol Eng Comput. 2008, Oct ,21

10. A Statistical Model and Simulator for Cardiovascular Pressure Signals.
    Staats, C; Austin, D; Aboy, M
    Journal of Engineering in Medicine, Volume: 222, Issue: 6, 2008
    Page(s): 991-998

11. Design and implementation of a portable physiologic data acquisition system
    Vinecore, K.; Aboy, M.; McNames, J.; Phillips, C.; Goldstein, B.
    Pediatric Critical Care Medicine, Volume: 8, Issue: 6, 2007
    Page(s): 563-569

12. 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): 1552-1559

13. Predicting survival in critical patients by use of body temperature regularity measurement based on approximate entropy.
Cuesta D, Varela M, Miró P, Galdós P, Abásolo D, Hornero R, Aboy M.
Med Biol Eng Comput. 2007 Jul;45(7)
Page(s): 671-8.

14. 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: 30(3), 2007
Page(s): 350-357

15. 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

16. 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

17. 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

18. 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): 2282-228

19. An Automatic Algorithm for Stationary Segmentation of Extracellular Microelectrode Recording.s
Aboy, M; Falkerberg, JH.
Medical & Biological Engineering and Computing, Volume: 44, Issue: 6, 2006
Page(s): 511-515

20. 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

21. 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

22. 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

23. 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

24. 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

25. 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

26. 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

27. 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

28. 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

29. 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

30. A Microcontroller-Based Portable Electrocardiograph Recorder.
Segura-Juarez, J.J.; Cuesta-Frau, D.; Samblas-Pena, L.; Aboy, M.;
IEEE Transactions on Biomedical Engineering, ăVolume: 51 ,ăIssue: 9 ,ă2004
Pages: 1686 - 1690

31. 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

32. 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

Selected Book Chapters & Peer-Reviewed Conference Publications Research Area: DSP, Biomedical Signal Processing, and Medical Devices

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

30. 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

31. 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

32. 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

33. 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

34. 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

35. 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

36. 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

37. 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

38. 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

39. 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

40. A Database of Occulographic 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

41. Designing Portable Biomedical Signal Recorders
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Subject Areas: International Management, Strategy, MIS, Patent Law

66. The Organization of Modern MNES is More Complicated than the Old Models of Global, Multidomestic, and Transnational
Author: Aboy, M.
International Business Strategy & Structure, SSRN, March, 2009.
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67. Examination of the Relationship Between Charles Schwab's Business and IS/IT Strategy
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Information Systems & Technology, SSRN, March, 2009.
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68. Patents in Monitoring of Movement Disorders
Author: Aboy, M.
Recent Patents in Biomedical Engineering (forthcoming)

69. Recent Patents Involving Methods using Complexity/Nonlinear Analysis Techniques in Medical Devices
Author: Aboy, M.
Recent Patents in Biomedical Engineering (forthcoming)

70. Recent Patents Involving Methods using State-Space Estimation Methods in Medical Devices
Author: Aboy, M.
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71. Recent Patents Involving the use of Kalman Filters
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72. Recent Patents Involving Medical Devices for Fluid Therapy Optimization
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79. Title of Invention: BLOOD PRESSURE ALGORITHM.
Application Number: 12/052659
Filing or 371(c) Date: 03/20/2008
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80. Title of Invention: AMBULATORY PATIENT MONITORING APPARATUS, SYSTEM AND METHOD.
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83. Title of Invention: PERSONAL INERTIAL MONITOR DOCKING STATION.
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85. Title of Invention: METHOD AND APPARATUS FOR AUTOMATIC ANALYSIS OF T-WAVE ALTERNANS.
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86. Title of Invention: COLLABORATION MARKETPLACE PLATFORM SYSTEM FOR RESEARCH AND MANAGEMENT OF CHRONIC CONDITIONS.
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87. Title of Invention: METHOD, SYSTEM, AND APPARATUS FOR STATISTICAL EVALUATION OF ANTIHYPERTENSIVE TREATMENT.
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89. Title of Invention: METHOD, SYSTEM, AND APPARATUS FOR CARDIOVASCULAR SIGNAL ANALYSIS AND MODELING, AND MONITORING.
Application Number: 60/969,333
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91. Title of Invention: COLLABORATION MARKETPLACE PLATFORM SYSTEM FOR RESEARCH AND MANAGEMENT OF CHRONIC CONDITIONS.
Application Number: 61/051,066
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Application Number: 61/059,866
Filing or 371(c) Date: 06-09-2008

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Application Number: 61/084,336
Filing or 371(c) Date: 07-29-2008

94. Title of Invention: SYSTEM AND APPARATUS FOR WIRELESS HIGH-FREQUENCY TEMPERATURE ACQUISITION AND ANALYSIS.
Application Number: 61/089,545
Filing or 371(c) Date: 08-17-2008

95. Title of Invention: COMPLETE SYSTEM AND PLATFORM FOR CONTINUOUS MONITORING AND ANALYSIS OF MOVEMENT DISORDERS.
Application Number: 61/099,204
Filing or 371(c) Date: 09-23-2008

96. Title of Invention: COMMUNICATION SYSTEM FOR REMOTE PATIENT VISITS AND CLINICAL STATUS MONITORING.
Application Number: 61/117,240
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97. Title of Invention: SYSTEM AND APPARATUS FOR CONTINUOUS MONITORING OF MOVEMENT DISORDERS.
Application Number: 61/120,485
Filing or 371(c) Date: 12-07-2008

98. Title of Invention: INSECT REPELLENT TEXTILES WITH MICROENCAPSULATED PERMETHRIN.
Application Number: 61/145,697
Filing or 371(c) Date: 01-19-2009

SELECTED GRANTS AND DONATIONS

1. National Science Foundation (NSF)
   Title: Increasing Access and Diversity in Technology Programs | S-STEM (2008-2012)
   Amount: $596,214.00
   M. Aboy (Co-PI), T. Sanders (PI), P. Kraft (Co-PI), D. Cornea-Hasegan (Co-PI)

2. Ministry of Science and Innovation (Spain)
   Title: Interpretation and Characterization of Complexity Analysis Techniques in the Context of Biomedical Signal Processing (2008)
   Amount: $17,872.20 for Phase I
   M Aboy (Co-PI), D Cuesta (Co-PI)

3. RFC & EFF Grants. OIT Internal Funding
   Title: RFC/EFF - Electrical Engineering & Renewable Energy Laboratory Development and Equipment (2008/9)
   Amount: $124,566, M Aboy (Co-PI), B Bass (Co-PI), C Crespo (Co-PI), J Zipay (Co-PI)

4. 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)

5. 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)

6. 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)

7. RFC Grant. OIT Internal Funding
   Title: RFC - Laboratory Equipment for EERE PDX (2007/8 Academic Year)
   Amount: $21,000, M Aboy (Co-PI), B. Bass (Co-PI)

8. Tektronix Donation
   Title: Electronics Lab Equipment Donation (2006/07 Academic Year)
   Amount: $20,000, M Aboy (PI)

9. RFC Grant. OIT Internal Funding
   Title: Laboratory Development & Equipment. Electronics & Physics (2006/7 Academic Year)
   Amount: $27,000, M Aboy (PI)

10. RFC Grant. OIT Internal Funding
    Title: Electronics Laboratory Development & Equipment (2005/6 Academic Year)
    Amount: $6,000, M Aboy (PI) , R. Bass (Co-PI)

11. RFC Grant. OIT Internal Funding
    Title: Electronics Laboratory Development & Equipment (2004/5 Academic Year)
    Amount: $13,000, M Aboy (PI)

12. 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)

13. 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)

14. 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)

15. 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)