

# MATEO ABOY

Professor of Engineering (EERE, ETM, OIT)

Senior Research Scholar (LML, U.Cambridge)

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— www.oit.edu/mse — www.lml.law.cam.ac.uk/people/members — https://www.apdm.com —

## Profile Summary

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**Teaching:** Professor with a track-record of outstanding teaching excellence (150+ class sections).

**Research:** Author of 100+ scholarly publications, H-index: 25+, i10-Index: 50+.

**Invention:** Creator of 20+ inventions which received US patent protection.

**Innovation:** Founder of 4 companies to commercialize key patented technologies & offer professional services.

**Funding:** Experienced securing and administering various types of funding for public/private initiatives.

**Patent Law:** Licensed to practice in patent cases before USPTO & 10 years of patent prosecution experience.

**Administration:** Experienced as a Program Director, Department Chair, VPR and Associate Provost.

**Leadership:** Experienced in C-Level Management, Strategy Development, and Negotiation.

**Technical Expertise:** Engineering (Data Science, DSP & AI), Law (IP & IT), Technical Management.

**Languages:** English, Spanish, Galician, Portuguese (C1), Italian (B2), French (A1), German (A1).

## Education

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### *Science & Engineering*

- PhD, Electrical & Communications Engineering (Information & Data Science), University of Vigo, ES, EU
- Cert., Digital Signal Processing, University of Oxford, UK
- Prof. Cert., Sustainable Energy Conversion and Storage, Stanford University, CA, US
- MPhil, (DEA) Information & Telecommunications Engineering, ETSET, University of Vigo, ES, EU
- MS, Electrical & Computer Engineering, CECS, Portland State University, OR, US
- Ing, (Engineer) Telecommunications Engineering, MEC, Spain, EU
- BS, Electrical Engineering & Physics, Minor in Mathematics, CECS, Portland State University, OR, US

### *Law, Patent Prosecution & IP Technology Transfer/Licensing*

- SJD, Doctor of Juridical Science, Faculty of Law, University of Salamanca, ES, EU (*IP*)
- Law Degree, Graduate Qualifying Law Degree (Grad QLD LLB), UCL/ULLS, University of London, UK
- Law Revision Programme (Contract, Trusts, Tort, Property, Public & EU), University of Cambridge, UK
- Cert., Negotiation & Leadership, Harvard Law School, Harvard University, MA, US
- RPA, Registered Patent Agent, United States Trademark & Patent Office, VA, US
- CLP, Certified Licensing Professional, Licensing Executives Society, VA, US

### *Management & Leadership*

- MBA, International Management, University of London, UK, EU
- Exec. Cert., Management & Leadership, MIT Sloan, Massachusetts Institute of Technology, MA, US
- Cert., Strategy, Financial Analysis & Technical Management, MIT Sloan, MIT, MA, US

§**Academic Honors & Awards:** BSEE (High Honors), 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), MBA (Honors/Merit), Intel Faculty Fellow (Intel Fellowship Award), University Faculty Achievement Award (highest university-wide distinction awarded to a faculty member for excellence in teaching and service at Oregon Institute of Technology), 2013 Portland Business Journal “40 under 40” Award, Nightingale Best Scientific Paper Award (awarded 2015 for paper published in MBEC in 2012).

## Professional Licenses & Bar Admissions

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Chartered Professional Engineer (PE), Electrical & Telecommunications (COIT 12640), Licensed in the EU.

Bar Admission to Practice in Patent Cases before the USPTO (Prosecution of Patent Cases before USPTO).

Bar Admission to Practice before the Patent Trial & Appeals Board (PTAB), USPTO.

## Faculty Experience

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2016-Pres :: Senior Research Scholar, LML, University of Cambridge, UK  
2012-Pres :: Full Professor (Tenured), EERE, College of Engineering, Technology & Management, OIT, US  
2015-2017 :: Professor (Visiting Academic), CIPIL, University of Cambridge, UK  
2008-2012 :: Doctoral Professor (Joint Appointment), Biomedical Engineering Div, OHSU, US  
2008-2012 :: Associate Professor (Tenured), Electrical Engineering & Renewable Energy Department, OIT  
2007-2011 :: Research Professor (Joint Appointment), Polytechnic University of Valencia, ES, EU  
2006-2012 :: Doctoral Professor (Joint Appointment), DSP Doctoral Program, ETSIT-U.Vigo, ES, EU  
2004-2008 :: Assistant Professor (Tenure Track), EET (15-17) & EERE Department, OIT, US

## Fellowships

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2009-Pres :: Scientific Fellow, APDM Inc, US  
2016-2017 :: Visiting Fellow, Wolfson College, University of Cambridge, UK  
2005-2007 :: Intel Faculty Fellow, Intel Inc, US

## Academic Leadership & Service

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2016-Pres :: Program Director, MS in Engineering (MSE), Oregon Institute of Technology  
2011-2015 :: Vice President for Research, Oregon Institute of Technology  
2011-2015 :: Associate Provost (VP for Portland/Wilsonville Campus), Oregon Institute of Technology  
2011-2015 :: University President's Council, Oregon Institute of Technology  
2008-2015 :: University Provost's Council, Oregon Institute of Technology  
2008-2015 :: University Provost's Academic Council, Oregon Institute of Technology  
2008-2012 :: Department Chair, Electrical Engineering & Renewable Energy Department, OIT  
2009-2012 :: Chair, Task Force on Research, Innovation, and Technology Transfer, OIT  
2009-2013 :: Director & Patent Counsel, Office of Innovation & Technology Transfer (OITT), OIT  
2010-2011 :: Graduate Council, Oregon Institute of Technology  
2008-2012 :: ETM School Dean's Academic Council, Oregon Institute of Technology  
2006-2007 :: President's Strategic Positioning Team, Oregon Institute of Technology  
2006-2007 :: President's Applied Research Strategy Council, Oregon Institute of Technology  
2006-2007 :: Executive Committee, Oregon Center for Health Professions, OIT  
2006-2009 :: Strategic Enrollment Management Committee, OIT-PDX  
2005-2008 :: Program Director, Electronics Engineering Technology & EE Post-Bacc., EERE, OIT

## Professional Memberships

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Chartered Professional Engineer, COIT Professional Engineering Society (COIT No. 12684), EU  
Scientific Research Honor Society, US  
IEEE-Institute of Electrical & Electronics Engineers, IEEE Engineering in Medicine & Biology Society  
National Association of Patent Practitioners (NAPP), Licensing Executives Society (LES)

## Teaching: Summary by Area & Expertise

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- Data Science: Statistical Data Processing, Computational Data Analysis, Programming for Data Science
- Information Engineering: Linear Systems, Digital Signal Processing, Communication System Design
- Programming: Computer Programming for Engineers, MATLAB Programming, LabVIEW Programming
- Electronics Engineering: Circuit & Systems, Analog Electronics, ASIC Design, DSP
- Law: Intellectual Property Law, Patent Law, and Business Law for Engineers & Managers
- Management: Engineering Management, Strategy, Innovation & Entrepreneurship
- Research: Research Methods (Peer-Reviewed Research, Empirical IP Research, Technology Management Research)

## Teaching Experience: Selected Courses Taught

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**Teaching Assignments:** >150 classes taught at OIT from 2004/5 to 2017 (Total Class Enrollment: >1500 students)

**Course Evals:** Average Numerical Course Evaluations: 4.7/5.0; Student Comments & Evals Available Upon Request

**Listing Format:** Course Prefix/Number – Course Title – Term/Year – University

### Doctoral Level Courses

- T141a173 – Patent Fundamentals for Researchers and Inventors – S09, F15 – ETSIT-U. Vigo
- CSEE580/680 – Signals & Linear Systems – F08, W09, F10, F11 – OHSU
- BME582/682 – Nature & Analysis of Biomedical Signals – W05, W08, W09, F09, W10 – OHSU
- T141a171 – Data Science: Advanced Statistical Signal Processing (Online) – S07,S08,F09,F10,F11 – U. Vigo
- T141a172 – Biomedical Signal Processing (Online) – 08-09 – ETSIT-U. Vigo

### Master Level Courses

- ENGR/REE511 – RM&I: Intellectual Property & Patent Law – F12, F13, F14 - OIT
- ENGR/REE512 – RM&I: Research Methods & Innovation: Peer-Review Research – S17 - OIT
- ENGR/REE513 – RM&I: Commercialization & Technology Transfer – S13, S14 - OIT
- SUS 542 – Alternative & Renewable Energies – S10 – Marylhurst University

### Engineering Courses

- EE407 – Patent Fundamentals for Engineers and Managers – Su08, Su09, Su10, F10, S11 – OIT
- EE407 – Advanced Digital Signal Processing – S10, F10 – OIT
- EE431 – Digital Signal Processing – W10, W11, W12, W13, W16, W17 – OIT
- ENGR267 – Programming for Engineers – Su10, W11, Su11, Su13, W14, Su14, Su15, W16, S16 – OIT
- EE225 – Circuits III - Laplace Transforms & Applications – S08, F08, S09, F09, S10, S11, F11 – OIT
- EE321 – Electronics I - Amplifiers & Semiconductors – F07, F08, F09, S10, F10, F11, F16, F17 – OIT
- EE323 – Electronics II - Transistor Amplifiers – W08, F09, W10, W16 – OIT
- REE201 – Introduction to Renewable Energy – F09 – OIT
- REE221 – LabVIEW Programming – W06, Su06, W07, Su07, W08, W09 – OIT
- ENGR407/465 – Senior Project – F09, W10, S10, F10, W11, S11, Su11, F11 – OIT
- Other: Reliability & Quality Control, ASIC Design, Laplace Transforms & Applications, Data Science

### Mathematics and Statistics

- MATH465 – Mathematical Statistics – W06 – OIT
- MATH407 – Special Topics in Linear Algebra – S09 – OIT

## Overall Research Summary

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- Current Primary Research Topic: “Empirical Study on the Patentability of Information Age Inventions”
- Engineering Research Areas: Data Science, IP Analytics, DSP, BSP, Medical Devices
- Law Research Areas: Patent Law, Medical Device Law, Tech Transfer, Computational Law
- Management Research Areas: Competitive Strategy, Disruptive Innovation, Enterprise Valuation, Biotech
- Scholarly Articles Published: 100+ (Available in Google Scholar)
- Inventive Activity: 20+ issued patents and patent publications (Available in USPTO)
- Research Statistics: h-Index: 25+, i10-index: 50+, Citations: >2000, MAR 14 Ranking: 51 out of 48515
- Funding: Secured \$10.0M+ in funding for R&D initiatives (public & private)

## Engineering Research Summary: DSP, BSP & Applications

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The overall theme of my research in this area is to develop novel engineering methods to help solve relevant data science (big data), digital signal processing and biomedical engineering problems. I’m particularly interested in problems involving the application of advanced statistical signal processing & data science techniques to develop novel 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. As part of technology transfer efforts to commercialize part of these research outputs, I co-founded APDM Inc (a wearable technologies company that commercializes best-in-class solutions for quantification of human movement using inertial sensors). For additional details visit: <http://www.mateoaboy.com> & <http://www.apdm.com>

## Data Science Research Summary: Data Science, AI & Applications

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This area of research is focused on the development and application of computational data science & artificial intelligence to solve data intensive problems of public and private interest. The research projects in this area typically lie at the interface between engineering, law, and management sciences. The overall objective is to apply computational data science in order to conduct evidence-based (empirical) studies to guide public policy and/or private strategy. Examples areas of research include: Computational Data Science & IP, Legal/IP Informatics & Computational Analytics, Automated Patent Search Algorithm Development, Patent Landscape Studies, Empirical Legal Research (Impact Empirical Analysis of IP Decisions), Machine Learning & IP (e.g., Automatic Analysis of Patent Claims to Determine Similarity, Scope, and/or Validity), Empirical Patent Valuation, Empirical Licensing & Technology Transfer, Intellectual Capital & IP Strategy, and Computational Law. For additional details visit: <https://www.lml.law.cam.ac.uk/people/members>

## Law & Management Research Summary: IP, Strategy & Innovation

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This area of research is focused on intellectual property, competitive strategy, and innovation. I’m interested in conducting 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). Currently, I am actively conducting research on fundamental patent law questions involving subject matter eligibility of information age inventions (e.g., computer-related inventions, data science inventions, biotech) and the impact of recent US Supreme Court case law including *Myriad v AMP*, *Mayo v Prometheus* and *Alice Corp v CLS Bank*, as well as the parallel jurisprudence of the EPO and countries signatory of the European Patent Convention. A related area of research is focused on medical device law and regulation (US, UK and EU). In order to bring this patent law research to practice, I also actively prosecute selected patent applications before the USPTO. My part-time boutique patent practice is focused on cases raising interesting issues of patent law resulting in challenging patent prosecutions from a legal and technical standpoint. I have successfully prosecuted to Allowance dozens of patent cases overcoming USPTO Rejections raising 35 USC 101, 102, 103 and/or 112 issues. In the field of strategy, I’m primarily interested in application of the Delta Model (Hax) and the theory of disruptive innovation to various firms and their generalizations. For additional details visit: <http://www.aboypatents.com> and <https://www.lml.law.cam.ac.uk/people/members>

## Departmental Leadership Experience

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**Department Chair (2008-2012)**, Electrical Engineering & Renewable Energy (EERE), OIT

**Portland Program Director (2017-Pres)**, MS in Engineering (MSE), OIT

**Portland Program Director (2005-2008)**, EE(T), OIT

**§ Summary of Accomplishments:** Under my leadership and execution as the EERE Department Chair (2008-2012) and as a Portland Program Director (2005-2008), the EERE Department team achieved the objectives outlined below, resulting in the transformation of a technology department (Department of Electronics Engineering Technology in 2005) with a single program (BS in Electronics Engineering Technology) to a full engineering department (Department of Electrical Engineering & Renewable Energy) offering a BS in Electrical Engineering, a BS in Renewable Energy Engineering, a BS in Electronics Engineering Technology, a BS/MS (4+1) in Engineering & Applied Physics (Partnership with University of Oregon), a MS in Renewable Energy Engineering, and a MS in Engineering (Systems, Embedded, etc).

### **ABET Accreditation (New Program Accreditation for BSREE & BSEE)**

- Secured ABET accreditation for the BS in Renewable Energy Engineering program (ABET EAC, 2011).
- Secured ABET accreditation for the BS in Electrical Engineering (ABET EAC, 2012).
- Secured ABET accreditation for the BS in Electronics Engineering Technology (ABET TAC, 2008).

### **Development of Graduate Programs**

- Designed, developed, obtained approval, and launched a Master of Science in Engineering (MSE) with multiple specialties including MSE in Systems Engineering, and MSE in Embedded Systems Engineering.
- Designed, developed and obtained approval for launching a Master of Science in Renewable Energy Engineering (Launched in Fall 2012 and became the largest graduate program at Oregon Tech).
- Launched a 4+1 partnership program with University of Oregon leading to a BS in Engineering from OIT and a MS in Applied Physics from University of Oregon.

### **Transformation from Technology to Engineering**

- Transformed from a technology department with no faculty at the Ph.D./P.E. level to a full engineering department attracting 12 new full-time faculty at the Ph.D. level (11) or with P.E. licensure (2).
- Transformed from a single technology program EET department to a multidisciplinary department with Ph.D. faculty with graduate degrees in Electrical Engineering, Materials Science, Physical Chemistry, Physics, Mechanical Engineering, Energy Efficient, and Energy Policy.
- Obtained approvals to offer new BS degrees in Electrical Engineering (WLV), Renewable Energy Engineering (KF, PDX), BS in Electronics Engineering Technology (PDX-West), MSREE, and MSE.

### **Diversity and Global Perspective**

- Transformed into a diverse department including faculty from 5 countries across 4 continents with higher education degrees from 8 countries, and attracted 3 woman engineering Ph.D. tenure/tenure-track professors.

### **Department Extension Operations**

- Transformed the OIT-Portland Extension Operation for EET department from a 1.0 FTE faculty (W05) extension operation offering Engineering Technology in Clackamas (23 students) to a full EERE department (220 students) with 8 full-time faculty (7 Ph.D., 1 PE) across two locations: PDX-East (Clackamas, REE: >150 students) and PDX-West (Beaverton/Hillsboro, EE(T): > 75 students). Launched a full BS in Electronics Engineering Technology at the Portland Westside increasing the student-credit hours (SCH) generated by EET students at the at the PDX-West location from 192 to 2100+ SCH.

### **Strategic Enrollment Management**

- Achieved a total department enrollment of over 375 EERE students - Increased enrollment in EERE PDX from 24 (2004) to 220 (2011) - Increased enrollment in BSEET at PDX West from 3 (2004) to 70 (2011) - Increased enrollment in BSREE at PDX East from 3 (2004) to 152 (2011) - Increased enrollment in BSREE at KF from 2 (2008) to 98 (2011) - Increased enrollment in BSEE at KF from 10 (2008) to 57 (2011)

### **Funding**

- Attracted over \$2,500,000 in federal funding for the EERE department (labs and faculty support) - Attracted \$793,394 in equipment funding through internal competitive processes (Engineering Fee Fund, Resource Based Fee Fund grants, etc.) - Attracted NSF S-STEM funding of > \$1,1175,000.

**National Recognition** - Contributed to OIT being nationally ranked by US News & World Report in the category of Best Undergraduate Engineering Programs (BS/MS universities): 35th

## University Leadership Experience

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### **Associate Provost (2011-2015), Oregon Institute of Technology**

§ **Brief Description of Position:** As the Associate Provost, I served as the executive in residence at the Portland-Metro/Wilsonville Campus (i.e., VP for the Oregon Tech Wilsonville Campus) with overall responsibility for developing and executing the strategy to create a new urban, industry-focused branch-campus for Oregon Tech. As the Wilsonville Campus Chief Academic & Operating Officer (Chief Campus Administrator), I had overall responsibility for strategy, daily operations and administration of the campus (Academics, F&A, Student Services).

**Illustrative accomplishments** include serving as the Founding Vice President for the Oregon Tech-Portland Metro Campus responsible for developing, leading, and successfully executing an academic strategy for establishing an urban branch campus in Wilsonville (\$30M+ capital project), doubling the number of academic programs offered, creating a full-portfolio of engineering programs at the Wilsonville Campus, securing funding to launch and sustain academic programs (NPV > \$25M), and growing the enrollment over 133% (SCH) in three academic years.

### **Vice President for Research (2011-2015), Oregon Institute of Technology**

§ **Brief Description of Position:** As the first Vice President for Research (VPR) at Oregon Tech, my responsibility focused on promoting research, sponsored projects, innovation, and technology transfer at the university. As the Chief Research Officer, I was responsible for university-wide advancement of the research mission by encouraging and facilitating excellence in scholarly, sponsored research, and innovation activities. As the VPR, I served as the Authorized University Official with signature authority over Sponsored Projects, Grant-related agreements, Intellectual Property Agreements, Patentable Subject Matter, and Research Administration & Research/IP regulatory compliance. **Illustrative accomplishments** include: (1) Founding and overseeing the Office of Sponsored Projects & Grants Administration, Office of Innovation & Technology Transfer, Graduate Council, and Oregon Tech IRB; (2) Representing Oregon Tech in external Councils and Boards with the other Oregon VPRs including the Oregon Innovation Council (OregonInc), the Commercialization Research Council, the BEST Board, the NWCSM Board, AUTM, and LES; (3) Providing faculty support to secure external funding by encouraging investment in research infrastructure and promoting scholarship on campus. Major accomplishments include the founding and establishment of the Office of Innovation & Tech Transfer (OITT) and the Office of Sponsored Projects & Grants Administration (SPA) at Oregon Tech.

### **Founder, Director, and Patent Counsel (2009-2011), OITT, Oregon Institute of Technology Office of Innovation & Technology Transfer (OITT) – <http://www.oit.edu/faculty-staff/oitt>**

§ **Summary of Accomplishments:** Founded the innovation and technology transfer office at OIT and designed the processes, procedures, and training for the university to meet the institutional responsibilities (OAR-580-043-0011) with regards to intellectual property, statutory protection of IP assets, and dissemination of technology through licensing. The OITT is responsible for managing the intellectual property assets of OIT. Accomplishments include:

#### **OITT Office Creation**

- Established the vision, mission, and objectives for the OITT.
- Registered OITT with USPTO (Customer Number and Digital Certificate for access to USPTO-EFS).
- Designed and oversaw the implementation of an advanced docketing system for accepting inventions disclosures and tracking the stages of patent prosecution before the USPTO, WIPO, and foreign offices.
- Created standardized templates, forms, and agreements to support the process of invention disclosure, statutory protection, and licensing of technology.

#### **IP Guidelines Development**

- Developed IP Guidelines interpreting the relevant OARs and IMDs for faculty & staff, industry sponsors, and companies and assured compliance with state and federal law (approved/adopted OUS Legal Counsel).
- Developed the “Agreement to Assign Rights to Inventions and Discoveries” employment agreement (adopted by OUS Legal Counsel).

#### **Training Development**

- Trained the IP Specialists to staff the OITT and designed a professional development plan including certification by WIPO, AUTM professional development, and LES coursework.
- Developed and delivered a training course for faculty and staff (OITT 101 “IP Basics for Faculty and Staff”)
- Developed training for faculty inventors (OITT 102) to draft invention disclosures with written descriptions with the required level of detail established by statute 35 USC § 112 (written description, enablement, and best mode).

## Summary of Professional Service & Appointments

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2014-16 Chair, Commercialization Research Committee, Oregon Innovation Council (OregonInc)  
2012-16 Board of Directors – Technical Advisor, Oregon Innovation Council (OregonInc)  
2013-16 Board of Directors, Northwest Collaboratory for Sustainable Manufacturing  
2013-16 Board of Directors, Oregon BEST  
2013-16 Research Council, Oregon BEST  
2011-15 Associate Editor/Editorial Board, ISRN Signal Processing Journal  
2008-11 Associate Editor, IEEE Engineering in Medicine & Biology (EMBC)  
2006-16 Associate Editor, IEEE RITA Journal (IEEE Education Society)  
2006-16 Scientific Committee Member, IEEE RITA Journal (IEEE Education Society)  
2006-16 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  
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, Clackamas CC, 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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2015 Nightingale Best Scientific Paper Award (MBEC 2012 Paper)  
2013 Portland Business Journal “40 under 40” Award (The Portland Business Journal’s “40 Under 40” award recognizes those individuals who have had a massive impact on the Portland area but who have yet to cross the 40-year old mark).  
2010 Faculty Achievement Award (University wide award for outstanding teaching and service), OIT  
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 Service to the State (State of Oregon)

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### Chair & Member (2012-2015)

#### Commercialization Research Committee, OregonInC

**§ Brief Description:** The Oregon Innovation Council (Oregon InC) is statutorily charged with recommending the establishment or continuation of Signature Research Centers (SRC) to enhance Oregon's global competitiveness: SB 838. The Commercialization Research Committee (CRC) within Oregon Inc is responsible for evaluating SRC applications and making funding recommendations based on how the Signature Research Centers advances the objectives of OBDD's Business Development Focus, which include: 1) Successfully compete for private and federal investment; 2) Generate new companies and jobs based on university R&D; 3) Identify and make strategic investments in emerging opportunities where Oregon has a competitive advantage; 4) Renew focus on business stability and job creation/retention; and 5) Help businesses access capital in an environment of tighter credit.

Oregon InC's mission is to create jobs, create companies and bring outside dollars back to Oregon. It does that by harnessing private sector leadership with Oregon's universities to commercialize cutting edge research; revitalize established industries and make them more competitive; help start-ups access capital, and provide Oregon businesses with access to otherwise out-of-reach R&D labs and researchers.

**§ Illustrative Accomplishments:** As the CRC Chair in 2014-2015, I led the development of the proposal for the 2015-2017 Innovation Plan (which resulted in an investment of \$24.65M from the State of Oregon in SRC's). Oregon InC's six initiatives for the biennium have captured \$197.5 million in federal and private grants for the state, and are on track to generate more than \$7 for every dollar the Legislature has invested so far. It has incubated 15 new companies, and its 11 shared labs have been used by more than 227 businesses to perfect ideas as diverse as portable kidney dialysis machines and new malaria-fighting drugs.

### Board Member (2013-2015)

#### Northwest Collaboratory for Sustainable Manufacturing (NWCSM)

#### (Oregon Advanced Manufacturing Initiative (OMIC))

**§ Brief Description:** The mission of the NWCSM is to enable and facilitate collaborative applied research efforts to leverage and enhance the competitiveness of the metals manufacturing industries and universities in Oregon. NWCSM had its origins within HB 5028 during the 2013 Oregon Legislature. The Governors budget allocated funds for universities to hire faculty, acquire necessary equipment and hire an executive director.

**§ Illustrative Accomplishments:** Major accomplishments include serving as part of the Founding Board that established the NWCSM as a legal entity, its mission, vision, strategy, as well as helping secure funding for its launch and ongoing operations.

### Board of Member (2013-2015)

#### Oregon BEST

**§ Brief Description:** Oregon BEST (an OregonINC funded Signature Research Center) nurtures clean technology innovation by transforming new ideas, research, and products into green collar jobs, greater sustainability, and economic prosperity for Oregon. BEST was founded in 2007 as the Oregon Built Environment & Sustainable Technologies Center, Inc (Oregon BEST) – an independent nonprofit. BEST provides leadership and leverage our expertise, resources, and relationships to achieve impact beyond our scale. - See more at: <http://oregonbest.org>.



## Summary of Industry Experience

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- 2015-2017 :: Scientific Fellow, APDM, Inc, US
- 2007-2014 :: Chief IP Officer (CIPO), APDM, Inc, US
- 2009-2017 :: Principal, Aboy & Associates, PC, US
- 2005-2008 :: Principal Management & Technical Consultant, Simplex, Inc, US
- 2003-2007 :: Principal Design Engineer, Chief Scientist, Tiba Medical, Inc, US
- 2004-2007 :: Professional Engineer (Principal Electrical Engineer), Method Engineering, LLC, ES, EU
- 2000-2002 :: Engineering Research Associate, Complex System Lab - OHSU, US
- 1999-2002 :: Lead Systems Administrator, CNS-LCT, PSU, US

## Industry Experience

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### **APDM, INC, OR, USA — [www.apdm.com](http://www.apdm.com) (2007-Present)**

**Firm Profile:** Wearable Technologies Company focused on Quantification of Human Movement.

**Firm Size:** Team of 20+ engineers and scientists.

**Current Position:** Fellow & Co-Founder (Part-Time).

**Previous Positions/Titles:** Chairman of the Board, President, COO/CFO, Chief IP Officer (CIPO).

#### **Summary of Experience & Contributions:**

- Board & C-level management, leadership and strategy formulation.
- Design of business strategy, corporate governance, and business operations.
- CIPO-level IP strategy and implementation (strategy, patent prosecution, licensing).
- CFO-level financial management.
- Design of accounting systems compliant with OMB A-133 & DCAA.
- Responsible for designing the QMS and QPM to enable ISO13485.
- Innovation and R&D (DSP IP conception, invention).

**Illustrative Customers:** NIH, NASA, DOD, Intel, Beth Israel Medical Center, Mayo Clinic, Massachusetts Institute of Technology, Stanford University, Columbia University, Imperial College London, Simon Fraser University, University of Michigan, University of Rochester, University of Pittsburgh, Oxford Brookes University, Oregon Health & Science University, University of Delaware, Kinetics Foundation

**Top Commercialized Products:** Opal (TM), Emerald (TM), Sapphire (TM), and Mobility Lab (TM)

### **ABOY & ASSOCIATES, PC — [www.aboypatents.com](http://www.aboypatents.com) (2009-Present)**

**Firm Profile:** Patent Prosecution and IP Strategy Firm (Professional Corporation).

**Firm Size:** 2 Registered Patent Agents, 2 Patent Attorneys (Of-Counsel), 1 Patent Support Personnel.

**Current Position:** Principal (Part-Time).

**Previous Positions/Titles:** Managing Director

#### **Summary of Experience & Contributions:**

- 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 Responses, Examiner Interviews.
- US Continuations: Preparing & Filing Continuations, Continuations-in-Part and Divisional Applications.
- International Applications: Prosecution of PCT Applications: International & National Stage Applications.
- Training & Education: Corporate training on innovation, patent fundamentals, development of patent strategy, university lecturing (Workshops on Patent Fundamentals for Engineers, Managers, & Entrepreneurs).
- Technical Services: Expert Opinions in DSP, Biomedical Signal Processing, Medical Devices, and SSP.

**Principal Practice Areas:** Electrical Engineering, Computer Engineering, Telecommunications, Digital Signal Processing, Biomedical Signal Processing, Medical Devices, Cryptography Systems, Computer-Implemented Methods.

## Industry Experience - Continuation

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### **TIBA MEDICAL, INC, OR, USA — [www.tibamedical.com](http://www.tibamedical.com) (2003-2007)**

**Profile:** Medical Devices Company focused on Ambulatory Blood Pressure Monitoring

**Position/Title:** Principal Design Engineer (2003-2005) and Chief Scientist (2005-2007)

#### **Summary of Experience & Contributions:**

- Product Definition & Design of Ambulatory Blood Pressure Monitoring Systems.
- Design of Signal Processing Algorithms for Ambulatory Blood Pressure Monitors -ABPM (Ambulo 2400).
- Design of Signal Processing Algorithms for Actigraphy.
- Clinical Device Validations (AAMI, SP10, BHS, ESH, FDA 510k).
- Development of IP portfolio and statutory protection of key inventions.
- Research & Development, MATLAB modeling and implementation of BP algorithms.

**Firm Status:** Tiba's blood pressure devices, products, technology, and IP assets were acquired in 2011 by Mortara Instrument, Inc (industry leader in ECG monitoring solutions).

**Top Commercialized Products:** Ambulo 2400 APBM System (TM)

### **SIMPLEX, INC, OR, USA (2005-2008)**

**Profile:** Professional Services Firm Specialized in Strategic & Technical Consulting.

**Position/Title:** Principal Technical & Management Consultant (2005-2008)

#### **Summary of Experience & Contributions:**

- 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.
- IP strategy development & technology transfer consulting.

**Representative Clients:** Tiba Medical, Inc (consulting principal engineer 2003-2007), OHSU (development of a PPV system), Innovatec SL (Representation, Strategy Development, Outsourcing Brokerage).

### **METHOD ENGINEERING, LLC, Spain, EU — [www.metodweb.com](http://www.metodweb.com) (2004-2007)**

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

**Position/Title:** Professional Engineer & Partner (2004-2007) (Chartered Engineer licensed in the EU)

#### **Summary of Experience & Contributions:**

- Practicing professional engineer: responsible for the design, development, and approval of ICT projects.
- Design, development, and management of ICT projects for residential buildings and commercial spaces.
- General firm leadership & strategy development.
- Coordination of a team of Architects, Architectural Engineers, Construction, Mechanical, Electrical Engineers, and Industrial Engineers.

**Representative Clients:** Architecture, Construction and Development Firms

### **COMPLEX SYSTEMS LAB, Doernbecher Children's Hospital/BSP Lab, OR, US (2000-03)**

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

**Position/Title:** Engineering Research Assistant (2000-2002), DSP Engineer & Researcher (2002-2003)

#### **Summary of Experience & Contributions:**

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

### **OFFICE OF INFORMATION TECHNOLOGIES, PSU, OR, US (1999-2002)**

**Profile:** Information Technology Division of Portland 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 Experience & Contributions:**

- Manage new Information Technology deployments.
- IT system administration (Network+ Certified), CCNA.
- Supervise a team of 9 computer and network professionals.
- Support 600+ campus computers.

## Selected Peer-Reviewed Journal Publications

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1. After Myriad, what makes a gene patent claim markedly different from nature?  
M Aboy, J Liddicoat, K Liddell, M Jordan, C Crespo  
Nature Biotechnology 35 (9), 820-825, 2017
2. Inertial and time-of-arrival ranging sensor fusion  
P Vasilyev, S Pearson, M El-Gohary, M Aboy, J McNames  
Gait & Posture 54, 1-7, 2017
3. Review of Recent Patents in the Area of Intelligent, Adaptive, Wireless and GPS Enabled HVAC Control Devices  
E Polk, L Polk, M Aboy, C Crespo  
Recent Patents on Engineering 10 (3), 175-186, 2016
4. Myriad's impact on gene patents  
M Aboy, K Liddell, J Liddicoat, C Crespo  
Nature biotechnology 34 (11), 1119-1123, 2016
5. A novel particle filtering method for estimation of pulse pressure variation during spontaneous breathing  
S Kim, F Noor, M Aboy, J McNames  
Biomedical engineering online 15 (1), 94, 2016
6. Review of Recent Patents on Anaerobic Digester Gas for Fuel Cell Applications  
B Warlick, C Diaz, P S Vasconcelos, C Crespo, M Aboy  
Recent Patents on Engineering 9 (2), 113-123, 2015
7. Review of Recent Patents on Carbon Nanotube Based Electrodes for use in Supercapacitor Applications  
C Diaz, A R Ponder, M McGee, C Crespo, M Aboy  
Recent Patents on Engineering 9 (1), 21-28, 2015
8. Review of Recent Patents on Flexible Photovoltaic Applications in Portable and Niche Markets  
R Smith, C Crespo, M Aboy  
Recent Patents on Engineering 7 (3), 153-166, 2013
9. Review of recent patents on wearable movement sensors  
M Aboy, J McNames, C Crespo  
Recent Patents on Biomedical Engineering 6 (2), 82-88, 2013
10. Review of Recent Patents on Detection and Quantification of Tremor  
M Aboy, C Crespo, J McNames, J Sprunger  
Recent Patents on Biomedical Engineering 6 (2), 89-96, 2013
11. Influence of QRS complex detection errors on entropy algorithms. Application to heart rate variability discrimination  
A Molina-Pic, D Cuesta-Frau, P Mir-Martinez, S Oltra, C Crespo, M Aboy  
Computer methods and programs in biomedicine 110 (1), 2-11, 2013
12. Clinical application of a novel automatic algorithm for actigraphy-based activity and rest period identification to accurately determine awake and asleep ambulatory blood pressure monitoring parameters and cardiovascular risk  
C Crespo, JR Fernandez, M Aboy, A Mojn  
Chronobiology international 30 (1-2), 43-54, 2013
13. Pulse Pressure Variation Tracking Using Sequential Monte Carlo Methods  
Biomedical Signal Processing and Control.  
Sunghan K, Aboy M, McNames J  
Biomedical Signal Processing and Control, Vol 8, Page(s): 333-340, 2013
14. Automatic identification of activity-rest periods based on actigraphy  
C Crespo, M Aboy, JR Fernandez, A Mojn  
Medical & biological engineering & computing 50 (4), 329-340, 2012
15. Automated prediction of the apnea-hypopnea index from nocturnal oximetry recordings  
JV Marcos, R Hornero, D Alvarez, M Aboy, F Del Campo  
IEEE Transactions on Biomedical Engineering 59 (1), 141-149, 2012

16. Comparative study of approximate entropy and sample entropy robustness to spikes  
A Molina-Pic, D Cuesta-Frau, M Aboy, C Crespo, P Mir-Martnez  
Artificial intelligence in medicine 53 (2), 97-106, 2011
17. Influence of QRS Complexity Detection Error on Entropy Measures.  
Molina-Pic A, Cuesta-Frau D, Mir-Martnez P,Oltra-Crespo S, Aboy M  
Medical & Biological Engineering and Computing, 2013, Vol 110(1)  
Page(s): 2-11
18. Automatic Identification of Activity-Rest Periods Based on Actigraphy.  
Crespo C, Aboy M, Fernandez JR, Mojon A.  
Medical & Biological Engineering and Computing, 2012, Apr; 50(4)  
Page(s): 329-340
19. Automated Prediction of the Apnea-Hypopnea Index from Nocturnal Oximetry Recordings.  
Marcos JV, Hornero R, Alvarez D, Aboy M, Del Campo F  
IEEE Transactions on Biomedical Engineering, 2012; Jan; 59(1))  
Page(s): 141-149
20. Comparative study of approximate entropy and sample entropy robustness to spikes.  
Molina-Pic A, Cuesta-Frau D, Aboy M, Crespo C, Mir-Martnez P, Oltra-Crespo S.  
Artificial Intelligence in Medicine. 2011 Oct; 53(2)  
Page(s): 97-106
21. Pulse Pressure Variation: Where Are We Today?  
Cannesson M, Aboy M, Hofer C, Rehman M.  
Journal of Clinical Monitoring and Computing, 2011, Feb; 25(1)  
Page(s): 45-46
22. Automated detection of obstructive sleep apnoea syndrome from oxygen saturation recordings using linear discriminant analysis.  
Marcos JV, Hornero R, Alvarez D, Del Campo F, Aboy M.  
Medical & Biological Engineering and Computing, 2010 Sep;48(9)  
Page(s): 895-902
23. Automatic segmentation of long-term ECG signals corrupted with broadband noise based on sample entropy.  
Mic P, Mora M, Cuesta-Frau D, Aboy M.  
Computer Methods and Programs in Biomedical Engineering, 98, 2010  
Page(s): 118-129
24. 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
25. A Novel Recursive Fourier Transform for Nonuniform Sampled Signals: Application to Heart Rate Variability Spectrum Estimation.  
Holland, A; Aboy, M.  
Medical & Biological Engineering and Computing, Volume: 47, Number: 7, 2009  
Page(s): 1741-0444
26. Can a simulation study of T-wave alternans (TWA) resolve whether TWA is T-wave amplitude dependent?  
Cuesta-Frau D, Aboy M, Biagetti M.  
Medical & Biological Engineering and Computing, 2009 Jan 31  
Page(s): 353-354
27. 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

28. 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
29. 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
30. Enhanced modified moving average analysis of T-wave alternans using a curve matching method: a simulation study.  
Cuesta-Frau D, Mic-Tormos P, Aboy M, Biagetti MO, Austin D, Quinteiro RA.  
Medical & Biological Engineering and Computing, 2008, Oct 21  
Page(s): 323-331
31. 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
32. 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
33. 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
34. Predicting survival in critical patients by use of body temperature regularity measurement based on approximate entropy.  
Cuesta D, Varela M, Mir P, Galds P, Absoló D, Hornero R, Aboy M.  
Med Biol Eng Comput. 2007 Jul;45(7)  
Page(s): 671-8.
35. A novel automatic image processing algorithm for detection of hard exudates based on retinal image analysis.  
Snchez CI, Hornero R, Lpez MI, Aboy M, Poza J, Absoló D.  
Medical Engineering Physics, Volume: 30(3), 2007  
Page(s): 350-357
36. Analysis of intracranial pressure during acute intracranial hypertension using Lempel-Ziv complexity: further evidence.  
Hornero R.; Aboy M.; Absoló D  
Medical & Biological Engineering and Computing, Volume: 45, Issue: 3 2007  
Page(s): 229-239
37. 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
38. 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
39. 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

40. 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
41. 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
42. Variability, Regularity, and Complexity of Time Series Generated by Schizophrenic Patients and Control Subjects.  
Honero, R.; Absolo, D.; Jimeno, N.; Sanchez, C.; Poza, J.; J.; Aboy, M.  
IEEE Transactions on Biomedical Engineering, Volume: 52, Issue: 10, 2006  
Page(s): 210-218
43. Complex Analysis of Intracranial Hypertension using Approximate Entropy.  
Honero, R.; Aboy M.; Absolo, D.; Wakeland, W.; Goldstein, B.  
Critical Care Medicine, Volume: 34, Issue: 1, 2006  
Page(s): 87-95
44. 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
45. 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, 2005  
Page(s): 1662-1670
46. Interpretation of Approximate Entropy. Case Studies in the Analysis of Intracranial Pressure During Acute Elevations in Traumatic Brain Injury.  
Honero, R.; Aboy, M.; Absalo, D.; McNames, J.; Goldstein, B.  
IEEE Transactions on Biomedical Engineering, Volume: 52, Issue: 10 , 2005  
Page(s): 1671-1680
47. Adaptive Modeling and Spectral Estimation of Nonstationary Biomedical Signals Based on Kalman Filtering.  
Aboy, M.; Mrquez, O.W.; McNames, J.; Hornero, R.; Thong, T.; Goldstein, B.  
IEEE Transactions on Biomedical Engineering, Volume: 52, Issue: 8, 2005  
Page(s): 1485-1489
48. 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
49. 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
50. 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
51. 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

52. 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
53. 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 Peer-Reviewed Conference Publications & Book Chapters

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41. Statistical model for cardiovascular signals with independent respiratory modulation for tracking pulse pressure variation.  
McNames J, Kim S, Aboy M;  
IEEE Engineering in Medicine and Biology Society (EMBS), 2011.  
Proceedings of the 33rd International Conference of the IEEE, Volume: 1, 2011  
Page(s): 4681-4684
42. Determination of sleep/wake periods based on actigraphy signals  
Crespo, C; Fernndez, JR; Aboy, M; Mojn, A  
Proceedings of the 26th Conference of the International Society for Chronobiology 2010, 2010  
Page(s): 98-99
43. Clinical Implications of Automatic Activity/Rest Identification in Cardiovascular Risk Assessment  
Crespo, C; Fernndez, JR; Aboy, M; Mojn, A  
Proceedings of the 26th Conference of the International Society for Chronobiology 2010, 2010  
Page(s): 101-102
44. Algorithm for Sleep/Wake Identification From Actigraphy  
Crespo, C; Aboy, M; Fernndez, JR; Mojn, A  
European Association for Speech, Signal and Image Processing (EURASIP), 2010.  
Proceedings of the 20th International EURASIP Conference BIOSIGNAL 2010, Volume: 1, 2010  
Page(s): 224 -228
45. Comparison of Automatic Sleep/Wake Detection Algorithms for Cardiovascular Risk Assessment  
Crespo, C; Aboy, M; Fernndez, JR; Mojn, A  
European Association for Speech, Signal and Image Processing (EURASIP), 2010.  
Proceedings of the 20th International EURASIP Conference BIOSIGNAL 2010, Volume: 1, 2010  
Page(s): 229-232
46. Measuring body temperature time series regularity using approximate entropy and sample entropy.  
Cuesta-Frau, D.; Miro-Martinez, P.; Oltra-Crespo, S.; Varela-Entrecanales, M.; Aboy, M.; Austin, D;  
IEEE Engineering in Medicine and Biology Society (EMBS), 2011.  
Proceedings of the 31st International Conference of the IEEE, Volume: 1, 2009  
Page(s): 3461-3464
47. Neurologic Monitoring  
Goldstein, B.; Aboy, M.; Graham, A.  
Roger's Textbook of Pediatric Intensive Care (2008)
48. 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
49. 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

50. Cardiovascular Signal Decomposition and Estimation with the Extended Kalman Smoother  
McNames, M; Aboy, M  
IEEE Engineering in Medicine and Biology Society (EMBS), 2006.  
Proceedings of the 28th International Conference of the IEEE, Volume: 1, 2006  
Page(s): 3708-3711
51. 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 28th International Conference of the IEEE, Volume: 3, 2006  
Page(s): 1391-1393
52. Speech recognition methods applied to biomedical signals processing  
Novak, D.; Cuesta-Frau, D.; Al ani, T.; Aboy, M.; Mico, R.; Lhotska, L.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2004.  
Proceedings of the 26th International Conference of the IEEE, Volume: 1, 2004  
Page(s): 118-121
53. Lomb-Wech periodogram for non-uniform sampling  
Thong, T.; McNames, J; Aboy, M..  
IEEE Engineering in Medicine and Biology Society (EMBS), 2004.  
Proceedings of the 26th International Conference of the IEEE, Volume: 1, 2004  
Page(s): 271-274
54. Impulse rejection filter for artifact removal in spectral analysis of biomedical signals  
McNames, J.; Thong, T.; Aboy, M.; .  
IEEE Engineering in Medicine and Biology Society (EMBS), 2004.  
Proceedings of the 26th International Conference of the IEEE, Volume: 1, 2004  
Page(s): 145-148
55. Heart rate variability analysis of effect of nicotine using periodograms  
Thong, T.; Yung, I.O.; Zajdel, D.P.; Ellingson, R.M.; McNames, J.; Aboy, M.; Oken, B.S.; .  
IEEE Engineering in Medicine and Biology Society (EMBS), 2004.  
Proceedings of the 26th International Conference of the IEEE, Volume: 1, 2004  
Page(s): 294-297
56. Power spectral density estimation and tracking nonstationary pressure signals based on Kalman filtering  
Aboy, M.; McNames, J.; Marquez, O.W.; Hornero, R.; Thong, T.; Goldstein, B.; .  
IEEE Engineering in Medicine and Biology Society (EMBS), 2004.  
Proceedings of the 26th International Conference of the IEEE, Volume: 1, 2004  
Page(s): 156-159
57. 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
58. 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
59. 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



60. 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
61. 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
62. 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
63. 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
64. 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
65. 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
66. 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
67. 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
68. 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
69. Accuracy of ultra-short heart rate variability measures  
Thong, T.; Li, K.; 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: 3, 2003  
Page(s): 2424-2427
70. 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
71. 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
  72. 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
  73. 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
  74. 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
  75. Modeling intracranial fluid flows and volumes during traumatic brain injury to better understand pressure dynamics  
 Wakeland, W.; McNames, J.; Aboy, M.; Hollemon, D.; 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): 402-405
  76. 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
  77. 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.  
 Proceedings of the 25th International Conference of the IEEE, Volume: 3, 2003  
 Page(s): 2889-2892
  78. Segmentation of Extracellular Microelectrode Recordings with Equal Power  
 Falkenberg, J.H.; McNames, J.; Aboy, M.; Burchiel, K.J.  
 IEEE Engineering in Medicine and Biology Society (EMBS), 2003.  
 Proceedings of the 25th International Conference of the IEEE, Volume: 3, 2003  
 Page(s): 2475-2478
  79. Stationarity of Ultra-Short Heart Rate Variability Measures  
 Thong, T. ; Kehai, L; McNames. J; Aboy, M. Goldstein, B  
 IEEE Engineering in Medicine and Biology Society (EMBS), 2003.  
 Proceedings of the 25th International Conference of the IEEE,, 2003  
 Page(s): 2424-2427
  80. Transient Pulse Morphology Analysis of the Intracranial Pressure Signal After Ventricular Drainage  
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 Proceedings of the 12th International Symposium Intracranial Pressure and Brain Monitoring Volume, 2003  
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81. Intracranial Pressure Pulse Amplitude and Mean Intracranial Pressure Analysis in Pediatric Traumatic Brain Injury  
Aboy, M.; McNames, J.; Wakeland, W.; Ellenby, M.; Desiree, H.; Lai, S.; Goldstein, B.  
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Proceedings of the 12th International Symposium Intracranial Pressure and Brain Monitoring, 2003
82. Evidence for Diminished Complexity During Intracranial Hypertension in Traumatic Brain Injury  
Aboy, M.; Crespo, C.; McNames, J.; Ellenby, M.; Goldstein, B.  
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83. Automatic Detection Algorithm for Physiologic Pressure Signal Components  
Aboy, M.; Crespo, C.; McNames, J.; Goldstein, B.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2002.  
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84. Harmonic Spectrogram for the Analysis of Semi-Periodic Signals  
McNames, J.; Crespo, C.; Aboy, M.; Bassale, J.; Jenkins, L.; Goldstein, B.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2002.  
Proceedings of the 24th International Conference of the IEEE, Volume: 1, 2002  
Page(s): 143-44
85. A Biomedical Signal Processing Toolbox  
Aboy, M.; Crespo, C.; McNames, J.; Bassale, J.; Jenkins, L.; Goldstein, B.  
European Association for Speech, Signal and Image Processing (EURASIP), 2002.  
Proceedings of the 16th International EURASIP Conference BIOSIGNAL 2002, Volume: 16, 2002  
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86. Techniques for the Visualization of Nonstationary Biomedical Signals  
McNames, J.; Bassale, J.; Aboy, M.; Crespo, C.; Goldstein, B.  
European Association for Speech, Signal and Image Processing (EURASIP), 2002.  
Proceedings of the 16th International EURASIP Conference BIOSIGNAL 2002, Volume: 16, 2002  
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87. Precursors in the Arterial Blood Pressure Signal to Episodes of Acute Hypotension in Sepsis  
Crespo, C.; McNames, J.; Aboy, M.; Bassale, J.; Ellenby, M.; Lai, S.; Goldstein, B.  
European Association for Speech, Signal and Image Processing (EURASIP), 2002.  
Proceedings of the 16th International EURASIP Conference BIOSIGNAL 2002, Volume: 16, 2002  
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88. Sensitive Precursors to Acute Episodes of Intracranial Hypertension  
McNames, J.; Crespo, C.; Bassale, J.; Aboy, M.; Ellenby, M.; Lai, S.; Goldstein, B.  
Proceedings of the 4th International Workshop Biosignal Interpretation, 2002  
Page(s): 303-306
89. Changes in the Blood Pressure Signal Autocorrelation Function Prior To Hypotension in Septic Shock  
Bassale, J.; McNames, J.; Ellenby, M.; Aboy, M.; Crespo, C.; Lai, S.; Goldstein, B.  
Critical Care Medicine, 2001. Volume: 29, No. 12/SS  
Page(s): A112-A113
90. Automatic Detection Algorithm of Intracranial Pressure Waveform Components  
Aboy, M.; McNames, J.; Goldstein, B.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2001.  
Proceedings of the 23th International Conference of the IEEE, Volume: 3, 2001  
Page(s): 2231-2234
91. Precursors to Rapid Elevations in Intracranial Pressure  
McNames, J.; Crespo, C.; Aboy, M.; Ellenby, M.; Lai, S.; Sciabassi, R.; Goldstein, B.  
IEEE Engineering in Medicine and Biology Society (EMBS), 2001.  
Proceedings of the 23th International Conference of the IEEE, Volume: 4, 2001  
Page(s): 3977-3980

## Inventorship: Selected Patents

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92. US 9,301,712 Method and apparatus for continuous measurement of motor symptoms in Parkinsons disease and essential
93. US 8,926,521 Method for blood pressure measurement from noninvasive oscillometric pressure signals
94. US 7,927,283 Blood pressure algorithm
95. US 8,900,153 Ambulatory patient monitoring apparatus, system and method
96. US 8,315,698 Method and apparatus for automatic analysis of T-wave alternans
97. US 8,920,345 System and apparatus for continuous monitoring of movement disorders
98. US 8,647,287 Wireless synchronized movement monitoring apparatus and system
99. US 8,305,423 Communication system for remote patient visits and clinical status monitoring
100. US 8,057,398 Method, system, and apparatus for cardiovascular signal analysis, modeling, and monitoring
101. US 8,529,458 Method and apparatus for assessment of fluid responsiveness
102. US 8,298,151 Method and apparatus for evaluation of fluid responsiveness
103. US 8,647,287 Method and system for activity/rest identification
104. US 8,862,195 Method, system, and apparatus for automatic detection of obstructive sleep apnea from oxygen saturation recordings
105. US D614,979 Personal inertial monitor
106. US D625,729 Personal inertial monitor docking station
107. US D668,980 Wearable movement monitor docking station
108. US D651,103 Wireless access point
109. US D639,955 Wearable movement monitor
110. US 20150078140 Wearable apparatus
111. US 20140122958 Wireless synchronized apparatus and system

## Selected Reports & Working Papers

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114. Should We Change the EU Law to Disallow DNA Patents?  
Aboy M. 3rd Annual Philomathia Symposium (2016)
115. Analysis of the Impact of the US Supreme Court decision *Mayo v Prometheus*.  
Aboy M. Workshop on Realizing Genomic Medicine (2016),
116. Globalization of Financial Markets and Financial Crises  
Financial Economics Network, Banking & Financial Institutions eJournal, SSRN, September, 2011.  
Available at SSRN: <http://ssrn.com/abstract=1936141>  
Author: Aboy, M.
117. Are Derivatives “Financial Weapons of Mass Destruction”? An Explanation of Why Derivatives Are Controversial and Often Considered High Risk  
Financial Economics Network, Risk Management eJournal, SSRN, September, 2011.  
Available at SSRN: <http://ssrn.com/abstract=1936168>.  
Author: Aboy, M.
118. The Organization of Modern MNEs is More Complicated than the Old Models of Global, Multidomestic, and Transnational  
Management Research Network, International Business Strategy & Structure eJournal, SSRN, March, 2009.  
(SSRN Top 10 Downloads List)  
Available at SSRN: <http://ssrn.com/abstract=1366055>  
Author: Aboy, M.
119. Examination of the Relationship Between Charles Schwab’s Business and IS/IT Strategy  
Information Systems & eBusiness Network, Information Technology & Systems eJournal, SSRN, March, 2009.  
(SSRN Top 10 Downloads List)  
Available at SSRN: <http://ssrn.com/abstract=1366570>  
Author: Aboy, M.
120. An Examination of Quantitative Approaches to Tactical Asset Allocation and Risk Management in Global Financial Markets  
Journal of Wealth Management, In Preparation  
Author: Aboy, M
121. An Analysis of the Impact of the Human Rights Act 1998 on the Judicial Understanding of Precedent  
Legal Scholarship Network, SSRN, LSN, May, 2012 Author: Mateo Aboy
122. English Contract Law: Case Law of Offer & Acceptance  
Legal Scholarship Network, SSRN, LSN, May, 2012  
Author: Mateo Aboy
123. English Contract Law: Case Law of the Doctrine of Consideration  
Legal Scholarship Network, SSRN, LSN, May, 2012  
Author: Mateo Aboy

## Selected University Grants

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**Total Funding Received (2005-2017):** >\$7.0M (PI, CO-PI, Co-Author); > 25M NPV (VPR)

1. National Science Foundation (S-STEM) (16-20)  
Title: Realizing Engineering Technology Achievement (RETA) Amount: \$997,000  
T. Nelson (PI) PCC, C.Crespo/M.Aboy (Co-PIs OIT )
2. Murdock Trust (& ETIC Matching) (14-17)  
Title: Funding to Enhance EERE Labs  
Amount: \$568,000  
M.Aboy (Proposer/Co-PI)
3. Northwest Collaboratory for Sustainable Manufacturing (15-17)  
Title: Coordinated and Strategic Investment in New Faculty Capacity to Support the NWSM  
Amount: \$1,300,000 (\$300,000 for OIT)  
M.Aboy (Co-PI OIT), R. Stone (Co-PI OSU), R. Su (Co-PI PSU)
4. Engineering & Technology Industry Council (ETIC)  
Title: New Program Development & Capacity Increases for High-Demand Engineering & Technology Degrees (2015/16): Systems Engineering, Optical Engineering & MS in Engineering  
Amount: \$236,093  
M.Aboy (Proposer, PI), C. Crespo (Co-PI)
5. Higher Education Coordinating Committee/Engineering & Technology Industry Council (ETIC)  
Title: ETIC Sustaining Funding to Support Engineering Program at Oregon Tech (FY16-17)  
Amount: \$2,204,400  
M.Aboy (Proposer)
6. Engineering & Technology Industry Council (ETIC)  
Title: New Program Development & Capacity Increases for High-Demand Engineering & Technology Degrees (2014/15)  
Amount: \$236,093  
M.Aboy (Proposer, PI), C. Crespo (Co-PI)
7. Engineering & Technology Industry Council (ETIC) Title: Development of an Optical Engineering Program (2014/15)  
Amount: \$96,093  
M.Aboy (Proposer, PI), Scott Prahl (Co-PI)
8. Engineering & Technology Industry Council (ETIC)  
Title: Electrical and Computer Engineering Labs to Support Oregon Tech – PSU Westside Partnership (2013/14) Amount: \$80,000  
C. Crespo (Proposer, PI), J. McNames (Co-PI), M. Aboy (Co-PI)
9. Engineering & Technology Industry Council (ETIC) (2013/14)  
Title: Development of a Systems Engineering & Technology Management Program Amount: \$110,000  
M.Aboy (Proposer, PI), C. Crespo (Co-PI)
10. Engineering & Technology Industry Council (ETIC)  
Title: Development of an Optical Engineering Program (2013/14) Amount: \$96,093  
M.Aboy (Proposer, PI), Scott Prahl (Co-PI)
11. National Science Foundation (NSF)  
Title: Increasing Access and Diversity in Technology Programs — S-STEM (2012-2017)  
Amount: \$599,000.00  
M. Aboy (Co-PI), Cr. Crespo (Co-PI), T. Sanders (Co-PI), P. Kraft (Co-PI), D. Cornea-Hasegan (Co-PI)
12. Department of Energy - Strategic Training and Education in Power Systems — STEPS  
Title: National Leadership in Power Engineering (2010-2013)  
Amount: \$2,491,100 (Federal), \$266,000 (Collaborators)  
B Bass (Principle Author, PD, PI, 2010-2011), M Aboy (Co-Author, Chair, CO-PI, 2011-Pres.), F Ryttonen (Co-PI, 2011-Pres.), C Crespo (Co-Author), L Colligan (Co-Author), M McCormic (Co-Author)

13. 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)
14. Engineering Fee Fund (2008-2010)  
 Title: Electronics, Electrical Engineering, and Renewable Energy Engineering Laboratory & Equipment Enhancement  
 Amount: \$332,669.78 (Amount brought as Dept. Chair for EERE Labs from EFF Grant)  
 M Aboy (Chair, Co-PI), B Bass (PD, Co-PI), C Crespo (PD, Co-PI), J Zipay (Co-PI), F Ryttonen (Co-PI)
15. Resource Fee Fund (2008-2010)  
 Title: Electronics, Electrical Engineering, and Renewable Energy Engineering Laboratory & Equipment Enhancement  
 Amount: \$124,566 (Amount brought as Chair for EERE Labs from RFF Grant)  
 M Aboy (Chair, Co-PI), B Bass (PD, Co-PI), C Crespo (PD, Co-PI), J Zipay (Co-PI), F Ryttonen (Co-PI)
16. OIT Internal Funding  
 Title: Enhancing OIT-Portland East Campus Laboratories Amount: \$ 340,000.00 M Aboy (Chair, Co-PI), B Bass (PD, Co-PI), F Ryttonen (Co-PI)
17. 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)
18. 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)
19. 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)
20. Intel Faculty Fellowship Grant  
 Title: Modular Curriculum in Electronics for Increased Access to Undergraduate Education in Oregon (2006/07 Academic Year)  
 Amount: \$40,000, M Aboy (PI)
21. 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)
22. Tektronix Donation  
 Title: Electronics Lab Equipment Donation (2006/07 Academic Year)  
 Amount: \$20,000, M Aboy (PI)
23. RFC Grant. OIT Internal Funding  
 Title: Laboratory Development & Equipment. Electronics & Physics (2006/7 Academic Year)  
 Amount: \$27,000, M Aboy (PI)
24. RFC Grant. OIT Internal Funding  
 Title: Electronics Laboratory Development & Equipment (2005/6 Academic Year)  
 Amount: \$6,000, M Aboy (PI) , R. Bass (Co-PI)
25. RFC Grant. OIT Internal Funding  
 Title: Electronics Laboratory Development & Equipment (2004/5 Academic Year)  
 Amount: \$13,000, M Aboy (PI)
26. 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)

## Selected Industry Innovation Grants

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**Funding Received by APDM Inc (2007-2016):** >\$7.0M (Below is a list of exemplary grants)

**Background:** I cofounded APDM, Inc in 2007 with Dr. James McNames and Mr. Andrew Greenberg. APDM is a wearable technologies company that engages in R&D, technology development, IP creation, and commercialization of systems for the quantification of human movement using inertial sensors. One of my key contributions at APDM during my tenure as Chairman & President was the development of an strategy to systematically obtain funding to conduct R&D for projects in TRL 4-7, as well as the design and implementation of the necessary government contract & grant administration systems to comply with all the regulatory and audit requirements (e.g., DCAA Audits, A-133/Universal Audits, etc). This included the development of the contract, accounting, and grant/sponsored project administration systems, authoring the policies and procedures, designing the associated controls, and negotiating the indirect rate proposal with the Federal government. The list below shows an exemplary list of grants and government contracts earned by APDM, Inc.

27. National Institute of Health (SBIR)  
Title: Monitoring Balance and Gait Disorders in Parkinson's Disease (2015-2016)  
Amount: \$662,980
  
28. Department of the Air Force (SBIR)  
Title: Mobile Motion Capture for Human Skeletal Modeling in Natural Environments (2014-2015)  
Amount: \$149,797
  
29. National Institute of Health (SBIR)  
Title: Monitoring Balance and Gait Disorders in Parkinson's Disease (2013-2015)  
Amount: \$349,030
  
30. National Institute of Health (SBIR)  
Title: A Short Instrumented Test of Mobility for Neurological Disorders (2012-2014)  
Amount: \$341,266
  
31. National Institute of Health (SBIR)  
Title: Continuous Monitoring of Turning in Patients with Parkinson's Disease (2012-2014)  
Amount: \$349,224