

MATEO ABOY

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www.mateoaboy.com — www.aboypatents.com — www.apdm.com

Profile Summary

Teaching: Full Professor with track-record of outstanding teaching excellence in over 150 classes taught.
Research: Author of 100+ scholarly publications, H-index > 20, Ranked 51 out of 48515 biomedical engineering researchers based on individual impact factor (2014 Microsoft Academic Research - Top World Researchers in Biomedical Engineering - Last 10 Years Ranking - Field Rating).
Grant Funding: Over \$7.0M in university grant funding and \$2.0M in private industry funding.
Academic Leadership: Experience as a Program Director, Department Chair, VPR and Associate Provost.
Law/IP: Prosecuted 30+ US patent cases to allowance as a USPTO Licensed Patent Agent since 2010.
Negotiation: Experienced negotiator (Negotiated contracts with 50M+ in value during FY12-FY15).
Innovation: Inventor of 20+ patented inventions resulting in numerous commercialized products.
Entrepreneurship: Experienced in C-Level Management, Strategy Development, New Venture Creation (Founded 4 business companies), Corporate & Competitive Strategy, Corporate R&D.
Regulatory Affairs: Experienced in US Federal Contracting, A-133/DCAA Audits, Medical Device Regulatory Compliance (US, EU, Canada), and Quality Systems (21 CFR 820, ISO 13485).

Education

Science & Engineering

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

Law, Patent Prosecution & IP Technology Transfer/Licensing

- SJD, Juridical Science Doctorate, Faculty of Law, University of Salamanca, ES, EU (*IP*)
- LLB, Law Degree in English & EU Law (QLD), UCL/ULLS, University of London, UK, EU
- Cert., Negotiation, 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, RHUL, 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), LLB(Honors), Intel Faculty Fellow (Intel Fellowship Award), US Permanent Residency awarded based on Scientific Extraordinary Ability & Outstanding Research Contributions (EB1), 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.

Professional Licenses & Bar Admissions

Professional Engineer (ES-COIT No. 12640), Licensed in the EU as a PE.

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, USPTO.

Faculty Appointments

2016-Pres :: Professor (Visiting Academic), Faculty of Law, Centre of IP Law, University of Cambridge, UK
2012-Pres :: Full Professor (Tenured), Electrical Engineering & Renewable Energy Department, OIT, US
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

University Academic Leadership & Service

2011-2015 :: Vice President for Research, Oregon Institute of Technology
2011-2015 :: Associate Provost (VP for Wilsonville Campus), Oregon Institute of Technology
2011-2016 :: 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
2009-2012 :: 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

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 Engineering in Medicine & Biology Society
Member IEEE Education Society
Member National Association of Patent Practitioners (NAPP)
Member Licensing Executives Society (LES)
Member Association of University Technology Managers (AUTM)

Teaching: Selected Courses Taught

Teaching Assignments: >150 classes taught at OIT from 2004/5 to 2015 (Total Class Enrollment: >1500 students)

Course Evals: Average Numerical Course Evaluations: 4.8/5.0; 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

- REE511 – Intellectual Property & Patent Law – F12, F13, F14 - OIT
- REE513 – Commercialization & Technology Transfer – S13, S14 - OIT
- SUS 542 – Alternative & Renewable Energies – S10 – Marylhurst University

Electrical Engineering, Renewable Energy Engineering, and General Engineering

- 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 – OIT
- ENGR267 – Advanced Programming for Engineers – Su10, W11, Su11, Su13, W14, Su14, Su15, W16 – OIT
- EE225 – Circuits III - Laplace Transforms & Applications – S08, F08, S09, F09, S10, S11, F11 – OIT
- EE321 – Electronics I - Introduction to Amplifiers & Semiconductors – F07, F08, F09, S10, F10, F11 – OIT
- EE323 – Electronics II - Transistor Amplifiers – W08, F09, W10 – 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

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, W06 – OIT
- EET407 – Data Science: Statistical Signal Processing and Data Analysis II – W06 – OIT
- EET463 – Reliability & Quality Control – Su06 – OIT
- EET358 – Senior Project Proposal – F06, W07, S07, F07 – 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

Departmental Leadership

Department Chair (2008-2012), Electrical Engineering & Renewable Energy (EERE), 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), and a MS in Renewable Energy Engineering across three locations (Klamath Falls, Wilsonville, and Portland-West).

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 and obtained approval for launching a Master of Science in Renewable Energy Engineering (Launched in Fall 2012 and currently 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 Building Construction, and Energy Policy.
- Obtained approvals to offer new BS degrees in Electrical Engineering (KF), Renewable Energy Engineering (KF, PDX), BS in Electronics Engineering Technology (PDX-West), and MS in Renewable Energy Engineering.

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): 42nd (2010 edition)

University Leadership

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 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-Wilsonville 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% 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.
- Secured resources to staff the tech transfer office with an IP Specialist.
- 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).

Research Summary: Data Science, Signal Processing & Applications

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 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 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.

MAR Ranking (Last 10 Years): Ranked 51 out of 48515 biomedical engineering researchers based on individual impact factor (2014 Microsoft Academic Research - Top World Researches in Biomedical Engineering).

Scholarly Publications: 100+

H-Index in Biomedical Engineering: 22

i10 Index in Biomedical Engineering: 39

Citations since 2009 (5 years): > 1000

No. Patents/Patent Application Publications: 40

Medical Device Companies: Co-Founded APDM Inc (Wearable Device Company for Quantification of Human Movement)

For additional details visit: <http://www.mateoaboy.com> & <http://www.apdm.com>

Research Summary: IP, Patent Law, 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 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 as 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 *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.

In order to bring this patent law research to practice, I also actively prosecute selected patent applications before the USPTO as a Registered Patent Agent. 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 over 35 cases in the last 4 years (all of which required overcoming Non-Final and/or Final 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>

Summary of Professional Service & Appointments

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

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)

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.

As the CRC Chair in 2014-2015, I led the development of the proposal for the 2015-2017 Innovation Plan (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

§ 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.

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>.

Professional Experience (Non-Academic)

ABOY & ASSOCIATES, PC — 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: Director & Registered Patent Agent (Part-Time).

Previous Positions/Titles: Managing Director & Registered Patent Agent.

Summary of Responsibilities:

- 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.

Individual Docket Size/Personal Patent Prosecution Experience: Responsible for the prosecution of 100+ patent cases before the USPTO as Registered Patent Agent of record.

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

APDM, INC, OR, USA — www.apdm.com (2007-Present)

Firm Profile: Medical Research Devices Company focused on Movement Monitoring Solutions.

Firm Size: Team of 20+ engineers and scientist (5+ Ph.D.); \$7M revenue (10-Pres).

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

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

Summary of Responsibilities:

- C-level management, leadership & strategy formulation.
- Responsible for business operations, corporate governance, and business strategy.
- Responsible for IP strategy and implementation (strategy, patent prosecution, licensing).
- Responsible for CFO-level financial management.
- Responsible for designing 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, product definition).

Illustrative Customers: NIH, NASA, DOD, Intel, Beth Isreal 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)

TIBA MEDICAL, INC, OR, USA — www.tibamedical.com (2003-2007)

Profile: Medical Devices Company focused on Ambulatory Blood Pressure Monitoring

Position/Title: Consulting Principal Design Engineer (2003-2005) and Chief Scientific Advisor (2005-2007)

Summary of Responsibilities:

- Ambulatory Blood Pressure Monitoring System Product Definition and Design.
- 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.
- Intellectual Property Strategy Development.
- 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)

Professional Experience (Non-Academic) - Continuation

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

Profile: Professional Services Firm Specialized in 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.
- Contract scientific research.

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 (2004-2007)

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

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

Summary of Responsibilities:

- Practicing professional engineer: responsible for the design, development, and approval of ICT projects (telecommunication infrastructure projects). ICT projects are required to be designed and approved by a Professional Engineer (PE) licensed by the COIT (PE Body) in Spain, European Union. (10+ buildings as principal PE.)
- Design, development, and management of ICT projects for residential buildings and commercial spaces. (200+)
- 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; Greencross Inversiones S.L; Fincas Hrculues 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 (2000-03)

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 Responsibilities:

- Perform simulation and validation of DSP systems and algorithms for biomedical signals.
- Design automatic QRS and pressure detection algorithms.
- Design novel analysis techniques for biomedical signals.
- Design signal processing and analysis algorithms for biomedical signals.
- Perform spectral and time-frequency analysis of biomedical signals.
- Conduct clinical research, publish results in conferences and journals, and mentor research assistants.

OFFICE OF INFORMATION TECHNOLOGIES, 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 Responsibilities:

- 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

1. Review of Recent Patents on Carbon Nanotube Based Electrodes for use in Supercapacitor Applications
Diaz C, Ponder A, McGee M, Crespo C, Aboy M
Recent Patents on Engineering, 2015, Vol 9, No.1
Page(s): 21-28
2. Review of Recent Patents on Anaerobic Digester Gas for Fuel Cell Applications
Warlick B, Diaz, C, Santos Vasconcelos P, Crespo C, Aboy M
Recent Patents on Engineering, 2015, Vol 9, No.2
Page(s): 113-123
3. Review of Recent Patents on Flexible Photovoltaic Applications in Portable and Niche Markets.
Smith R, Crespo C, Aboy M
Recent Patents on Engineering, 2013, Vol 6, No.2
Page(s): 89-96
4. Review of Recent Patents on Tremor Detection & Quantification.
Aboy M, McNames J, Crespo C, Sprunger J
Recent Patents on Biomedical Engineering, 2013, Vol 6, No.2
Page(s): 89-96
5. Review of Recent Patents on Wearable Movement Sensors.
Aboy M, McNames J, Crespo C
Recent Patents on Biomedical Engineering, 2013, Vol 7. No. 2
Page(s): 82-88
6. Clinical Application of a Novel Automatic Algorithm for Actigraphy-Based Activity and Rest Period Identification to Accurately Determine Awake and Asleep Ambulatory Blood Pressure Parameters and Cardiovascular Risk.
Crespo C, Fernandez J, Aboy M, Mojon A
Chronobiology International: The Journal of Biological and Medical Rhythm Research, 2013, Vol 1-2
Page(s): 43-54
7. 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, 2013, Vol 8
Page(s): 333-340
8. 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
9. 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
10. 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
11. 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
12. 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

13. 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
14. 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
15. 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
16. 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
17. 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
18. 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
19. 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
20. 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
21. 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
22. 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
23. 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
24. 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

25. 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.
26. 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
27. 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
28. 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
29. 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
30. Interpretation of the Lempel-Ziv complexity measure in the context of biomedical signal analysis.
Aboy M, Hornero R, Absoló D, Alvarez D
IEEE Transactions on Biomedical Engineering, Volume: 53, Issue: 11, 2006
Page(s): 2282-228
31. 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
32. 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
33. Variability, Regularity, and Complexity of Time Series Generated by Schizophrenic Patients and Control Subjects.
Honero, R.; Absoló, D.; Jimeno, N.; Sanchez, C.; Poza, J.; J.; Aboy, M.
IEEE Transactions on Biomedical Engineering, Volume: 52, Issue: 10, 2006
Page(s): 210-218
34. Complex Analysis of Intracranial Hypertension using Approximate Entropy.
Honero, R.; Aboy M.; Absoló, D.; Wakeland, W.; Goldstein, B.
Critical Care Medicine, Volume: 34, Issue: 1, 2006
Page(s): 87-95
35. 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
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36. 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
37. 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
38. 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
39. 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
40. 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
41. 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
42. 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
43. 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
44. 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

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; Fernandez, 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; Fernandez, 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; Fernandez, 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; Fernandez, 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.
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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
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60. A Novel Statistical Model for Simulation of Pressure Signals
Aboy, M.; McNames, J.; Thong, T.
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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.
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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.
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Page(s): 39-41
64. 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
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.
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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.
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67. Evidence for Diminished Complexity During Acute Hypotension in Sepsis
Aboy, M.; McNames. J.; Goldstein, B.
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68. Response Analysis of Intracranial Pressure to Changes in Respiratory Rate
Levitte, G.; Aboy, M.; McNames. J.; Goldstein, B.
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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
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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.
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 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.
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 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.
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 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.
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 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.
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 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.
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 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.
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 Page(s): 2424-2427
 80. Transient Pulse Morphology Analysis of the Intracranial Pressure Signal After Ventricular Drainage
 Aboy, M.; McNames. J.; Wakeland, W.; Ellenby, M.; Desiree, H.; Lai, S.; Goldstein, B.
 International Symposium Intracranial Pressure and Brain Monitoring, 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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82. Evidence for Diminished Complexity During Intracranial Hypertension in Traumatic Brain Injury
Aboy, M.; Crespo, C.; McNames, J.; Ellenby, M.; Goldstein, B.
Society of Critical Care Medicine, December 2002.
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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.
Proceedings of the 24th International Conference of the IEEE, Volume: 1, 2002
Page(s): 196-197
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.
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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
Page(s): 49-52 vol. 16
86. Techniques for the Visualization of Nonstationary Biomedical Signals
McNames, J.; Bassale, J.; Aboy, M.; Crespo, C.; Goldstein, B.
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Proceedings of the 16th International EURASIP Conference BIOSIGNAL 2002, Volume: 16, 2002
Page(s): 42-45 vol. 16
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
Page(s): 206-208 vol. 16
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
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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.
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Aboy, M.; McNames, J.; Goldstein, B.
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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 & Patent Application Publications

92. US 8,926,521 Method for blood pressure measurement from noninvasive oscillometric pressure signals
93. US 7,927,283 Blood pressure algorithm
94. US 8,900,153 Ambulatory patient monitoring apparatus, system and method
95. US 8,315,698 Method and apparatus for automatic analysis of T-wave alternans
96. US 8,920,345 System and apparatus for continuous monitoring of movement disorders
97. US 8,647,287 Wireless synchronized movement monitoring apparatus and system
98. US 8,305,423 Communication system for remote patient visits and clinical status monitoring
99. US 8,057,398 Method, system, and apparatus for cardiovascular signal analysis, modeling, and monitoring
100. US 8,529,458 Method and apparatus for assessment of fluid responsiveness
101. US 8,298,151 Method and apparatus for evaluation of fluid responsiveness
102. US 8,647,287 Method and system for activity/rest identification
103. US 8,862,195 Method, system, and apparatus for automatic detection of obstructive sleep apnea from oxygen saturation recordings
104. US D614,979 Personal inertial monitor
105. US D625,729 Personal inertial monitor docking station
106. US D668,980 Wearable movement monitor docking station
107. US D651,103 Wireless access point
108. US D639,955 Wearable movement monitor
109. US 20150078140 Wearable apparatus
110. US 20140122958 Wireless synchronized apparatus and system
111. US 20140066816 Method, apparatus, and system for characterizing gait
112. US 20100268551 System for data management, analysis, and collaboration of movement disorder data
113. US 20100030119 Method and apparatus for continuous measurement of motor symptoms in Parkinsons disease and essential tremor with wearable sensors (JO)

Non-Engineering Reports & Working Papers (Business & Law)

114. 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.
115. 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.
116. Analysis of Miller Brands’ Environmental Positioning and Strategic Considerations for Growing in Value in the UK Market
Corporate Strategy Network, Resource Based Strategy & Policy eJournal, SSRN, August, 2010.
Available at SSRN: <http://ssrn.com/abstract=1936171>.
Author: Mateo Aboy, Nga Yu Chow, Sabrina Debicki, Melvin John, Ebenezer Oduwole, Gwyneth Titus
117. 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.
118. 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.
119. 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
120. A Quantitative Approach to Seasonal Analysis in Energy Markets
Journal of Energy Markets, 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

Total Funding Received (2005-2014): >\$7.0M (PI, CO-PI, Co-Author)

1. Northwest Collaboratory for Sustainable Manufacturing
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)
2. 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)
3. 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)
4. 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)
5. 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)
6. 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)
7. 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)
8. 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)
9. 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)
10. 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)
11. 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)

12. 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)
13. 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)
14. 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)
15. 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)
16. 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)
17. 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)
18. 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)
19. 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)
20. Tektronix Donation
 Title: Electronics Lab Equipment Donation (2006/07 Academic Year)
 Amount: \$20,000, M Aboy (PI)
21. RFC Grant. OIT Internal Funding
 Title: Laboratory Development & Equipment. Electronics & Physics (2006/7 Academic Year)
 Amount: \$27,000, M Aboy (PI)
22. RFC Grant. OIT Internal Funding
 Title: Electronics Laboratory Development & Equipment (2005/6 Academic Year)
 Amount: \$6,000, M Aboy (PI) , R. Bass (Co-PI)
23. RFC Grant. OIT Internal Funding
 Title: Electronics Laboratory Development & Equipment (2004/5 Academic Year)
 Amount: \$13,000, M Aboy (PI)
24. 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

Total Funding Received by APDM Inc (2007-2014): \$2,453,280.88 (Below is a list of exemplary grants)

22. Department of the Air Force (SBIR)
Title: Mobile Motion Capture for Human Skeletal Modeling in Natural Environments (2014-2015)
Amount: \$149,797
Company: APDM, Inc (Co-Founder, Scientific Fellow, Non-PI Support)

23. National Institute of Health (SBIR)
Title: Monitoring Balance and Gait Disorders in Parkinson's Disease (2013-2015)
Amount: \$349,030
Company: APDM, Inc (Co-Founder, Scientific Fellow, Non-PI Support)

24. National Institute of Health (SBIR)
Title: A Short Instrumented Test of Mobility for Neurological Disorders (2012-2014)
Amount: \$341,266
Company: APDM, Inc (Co-Founder, Scientific Fellow, Non-PI Support)

25. National Institute of Health (SBIR)
Title: Continuous Monitoring of Turning in Patients with Parkinson's Disease (2012-2014)
Amount: \$349,224
Company: APDM, Inc (Co-Founder, Scientific Fellow, Non-PI Support)