

DENIZ ERDOGMUS

Northeastern University, Electrical & Computer Engineering Department
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Appointments

Northeastern University	Professor of Electrical and Computer Engineering (ECE) Associate Professor of ECE Assistant Professor of ECE Affiliation: Bioengineering (Sep 2010); Computer Science (Jan 2012)	Jul 2017 – present Jul 2012 – Jun 2017 Sep 2008 – Jun 2012
OHSU	Assistant Professor of Computer Science & Biomedical Engineering Adjunct: Radiology (2006–2008); BME (2008–2011)	Aug 2004 – Aug 2008
University of Florida	Postdoctoral Research Associate in ECE, CNEL	May 2002 – Jul 2004
University of Florida	Research Assistant in ECE, CNEL	Aug 1999 – Apr 2002
TUBITAK-SAGE	Research Engineer in the Guidance, Navigation, Autopilot Division	Jul 1997 – Jul 1999

Education

PhD	University of Florida, Electrical and Computer Engineering	May 2002
MS	Middle East Technical University, Electrical Engineering,	May 1999
BS	Middle East Technical University, Electrical and Electronics Engineering	Jul 1997
BS	Middle East Technical University, Mathematics	Jul 1997

Summary {As of 28 Feb 2019}

Publications	2 books (editor or major contributor), 9 chapters, 130 journal articles, 223 conference papers, 100 abstracts Textbook agreement with Cambridge University Press: <i>Noninvasive Brain Computer Interfaces</i> (due Dec 2019) According to Google Scholar estimates, about 8000 citations, $h_{\text{index}}=45$, $i10_{\text{index}}=165$
Fundraising	Research fundraising with collaborators (confidently) over \$35M (probably approximately \$50M) Personal research expenditures since 2005, approximately \$9.4M (\$1.25M at OHSU, \$8.15M at NEU) Recent/future annual expenditures: \$668K (2018), and estimated \$1M+ for 2019-2020
Advising	Postdocs: 8 past / 2 current; PhD students: 20 graduated, 14 current MS theses: 4 graduated / 1 current Many MS, BS, K12 project interns, and capstone teams over the years
Teaching Service	Since 2008, 1 undergrad & 1 grad course/year with mean student evaluations 3.3 & 3.9, respectively. AE for journals, member of conference organization committees, NSF/NIH panels, IEEE Technical Committees Founding member of the International BCI Society (2015) Faculty senate secretary, college and department council member/chair (2010-2019) Faculty search committees, helped recruit superb new faculty to the university (2010-2018) Significant contributor to the formation of Bioengineering Department at NEU (2009-2014)

RESEARCH ACTIVITIES

I direct the Cognitive Systems Laboratory (CSL), which participates in the [SPIRAL Group](#). CSL focuses on statistical signal, image data analytics and machine learning. Topics of interest include pattern recognition, multimodal sensor/data fusion, recursive Bayesian state estimation, nonlinear dimensionality reduction, active learning for modeling and inference. Application areas of recent interest include cyber-human systems, human-system collaboration, brain interfaces, brain stimulation, biomedical image and data analysis, sensor fusion for autonomous systems. In order to support my group's research activities, I have been continuously funded by NSF and NIH since 2005, with additional significant funding from DoD and foundations. A comprehensive list of publications is provided at the end of the CV.

Current Externally Funded Projects

[NSF18] Eugene Tunik (PI, NEU), Deniz Erdogmus (coPI, NEU), Dana Brooks (coPI, NEU), Wasim Malik (coPI, MGH), *Collaborative Research: Understanding Motor Cortical Organization Through Engineering Innovation to TMS-based Brain Mapping*, NSF (NEU Award: CBET-1804550), \$600,000 (DC ~\$370K, IC ~\$230K) Sep 2018 – Aug 2021. NEU budget \$300,000 (DC \$191,082; IC \$108,918). My share (33%) is \$100,000 (DC \$63,694; IC \$36,306).

[Simons18] Matthew Siegel (PI, Maine Medical Center Research Institute), Carla Mazefsky (coI, UPitt), Giulia Righi (coI, Brown), Matthew Goodwin (coI, NEU), Deniz Erdogmus (coI, NEU), Stratis Ioannidis (coI, NEU), *Autism Inpatient Collection Phase III*, Simons Foundation Autism Research Initiative (SFARI), \$2,192,134 total, Oct 2018 – Sep 2021. NEU budget is \$506,233 (DC \$421,871; IC \$84,362). My share (25%) is \$126,558 (DC \$105,468; IC \$21,090).

[Army18] Matthew Goodwin et al Autism, *Predicting Situational Onset of Aggression in Minimally Verbal Youth with Autism Using Biosensor Data and Machine Learning Algorithms*, \$460,733 (DC \$297,021; IC \$163,712), Sep 2018 – Aug 2021. My share (33%) is \$153,577 (DC \$99,007; IC \$54,570).

[ARM18] Taskin Padir (PI, NEU), Octavia Camps (coPI, NEU), Deniz Erdogmus (coPI, NEU), Sam Felton (coPI, NEU), Nader Jalili (coPI, NEU), Rob Platt (coPI, NEU), Peter Whitney (coPI, NEU), Peter Whitney (coPI, NEU), Joyce Sidopolous (coPI, MassRobotics), David Askey (Ascend Robotics, Partner), Doug Olson (Harmonic Drive, Partner), Chris Layer (Moog Inc, Partner), *Collaborative Robotics to Foster Innovation in Seafood Handling (FISH)*, Advanced Robotics for Manufacturing Institute \$1,515,000 total (\$500,000 from ARM, ~\$420,000 from MA, ~\$515,000 cost-share from partners), Jul 2018 – Jun 2019. My share (10%) is \$151,500 (DC \$96,500; IC \$55,000).

[ONR18] Xue Lin, Deniz Erdogmus, *Unifying the Attack and Defense Frameworks for DNNs*, ONR \$125,000 (DC \$79,618; IC \$45,382), Apr 2018 – Sep 2019. My share (30%) is \$37,500 (DC \$23,885; IC \$13,615).

[NSF17] Murat Akcakaya (PI, UPitt), Deniz Erdogmus (coPI, NEU), Douglas Weber (coPI, UPitt), *CHS: Small: Collaborative Research: EEG-guided Electrical Stimulation for Immersive Virtual Reality*, NSF (IIS-1717654@UPitt; IIS-1715858@NEU), ~\$500K total, Oct 2017 – Sep 2020. My share at NEU is \$142K (DC \$91,535; IC \$50,465).

[NSF16b] Jayashree Kalpathy-Cramer (PI, MGH), Stratis Ioannidis (coPI, NEU), Deniz Erdogmus (coPI, NEU), Jennifer Dy (coPI, NEU), Michael Chiang (coPI, OHSU), Peter Campbell (coPI, OHSU), Kemal Sonmez (coPI, OHSU), Paul Ryan (coI, UIC-Medical), *SCH: INT: Collaborative Research: Assistive Integrative Support Tool for Retinopathy of Prematurity*, NSF (NEU Award: IIS-1622536), \$1,900,000 (DC ~\$1.2M; IC ~\$700K) Oct 2016 – Sep 2020. NEU budget \$800,000 (DC \$517,800; IC \$282,200). My share is \$266,666 (DC \$172,600; IC \$94,066).

[NSF15] Deniz Erdogmus (PI, NEU), Gunar Schirner (coPI, NEU), Taskin Padir (coPI, NEU), Cagdas Onal (coPI, WPI), Paolo Bonato (coPI, HMS-Spaulding), *CPS: TTP Option: Synergy: Collaborative Research: Nested Control of Assistive Robots Through Human Intent Inference*, NSF (CNS-1544895), \$1,100,000 (DC \$720,566; IC \$379,434) Oct 2015 – Sep 2019. NEU budget \$603,000 (DC \$393,466; IC \$209,534). My share is \$203,000 (DC \$132,460; IC \$70,540).

[NIH15b] Michael Chiang (PI, OHSU), Peter Campbell, Kemal Sonmez (coI, OHSU), Paul Chan (coI, UIC-Med), Deniz Erdogmus (coI, NEU), *Clinical and Genetic Analysis of Retinopathy of Prematurity*, NIH (2R01EY019474), Total Budget Unknown, Mar 2015 – Feb 2020. My share is \$329,411 (DC \$213,210; IC \$116,200) for Mar 2017 – Feb 2020.

[NIH15a] Melanie Fried-Oken (PI, OHSU), Deniz Erdogmus (coI, NEU), Barry Oken (coI, OHSU), Steven Bedrick (coI, OHSU), Jodi Lapidus (coI, OHSU), Scott Spaulding (coI, UW-Seattle) *Clinical Interactions of a Brain Computer Interface for Communication*, NIH (2R01DC009834), \$3,853,240 (DC \$2,839,612; IC \$1,013,628) Apr 2015 – Mar 2020. NEU budget is \$1,234,700 (DC \$809,350; IC \$425,350) with introduction of David Smith to the team after NOA. My share is \$927,000 (DC \$600,000; IC \$327,000).

[NIDRR14] Janice Light (PI, Penn State University), Melanie Fried-Oken (coI, OHSU), Susan Fager & David Beukelman (coIs, Madonna Rehabilitation Hospital), Thomas Jakobs (coI, InvoTek), Deniz Erdogmus (coI, NEU), *The Rehabilitation Engineering Research Center in Augmentative and Alternative Communication*, National Institute on Disability and Rehabilitation Research (NIDRR-H133E140026), \$4,746,449 (DC 3,164,300; IC 1,582,149), Oct 2014 – Sep 2019. My share is \$180,000 (DC \$116,505; IC \$63,495).

Current Internally Funded Projects

[InstCR] Taskin Padir (Director), Institute for Cognizant Robotics at Northeastern University, ~\$10M investment promised by the university to this multidisciplinary team, Nov 2018 – Oct 2028.

[InstCILS] Heather Clark (Director), Institute for Chemical Imaging of Living Systems at Northeastern University, ~\$10M investment promised by the university to this multidisciplinary team, Jul 2018 – Jun 2028.

Expired Externally Funded Projects

[Childrens17] Deniz Erdogmus (PI of NEU subcontract from Childrens Hospital; R01 grant PI Ali Gholipour), *Motion-robust Super-resolution Diffusion-weighted MRI of Early Brain Development*, \$63,622 (DC \$50,493; IC 13,129) Jan 2017 – Dec 2018.

[IARPA14] Santosh Mathan (PI, Honeywell), Nick Young and Roi Kadosh (coIs, Oxford), Alvaro Pascual-Leone (coI, BIDMC), Deniz Erdogmus & Misha Pavel (coIs, NEU), *FAST-HARPP: Flexible, Adaptive, and Synergistic Training*, IARPA (SHARP-2014-13121700007), Total Budget Unknown, Jan 2014 – Feb 2018 (with NCE). NEU sub-budget is \$1,983,494 (DC: \$1,284,261; IC \$699,233). My lab's expenditures are approximately 70% of the total \$1,388,446 (DC \$898,983, IC \$489,463). Breakdown by phases is P1a \$456,440 in 2014; P1b \$530,498 in 2015; P2 \$534,226 in 2016 and \$298,038 in 2017 (original) plus a supplement of \$141,292, plus another supplement of \$23,000.

[CAREER] D. Erdogmus (PI, NEU), *CAREER: Signal Models, Channel Capacity, and Information Rate for Noninvasive Brain Interfaces*, NSF (HCC-1149570), \$504,608 (DC \$327,718; IC \$176,890), Feb 2012 – Jan 2019 (with NCE).

[NSF16a] Deniz Erdogmus (PI), Mohammad Moghadamfalahi (EL), Steven Klosterman (MT), *ACAI: Assistive Context Aware Interface*, NSF-iCORPS (??-??????), \$50,000 (DC \$45K; IC \$5K) Oct 2016 – Mar 2017. My share is \$50K.

[JANSSEN14] Deniz Erdogmus (PI, NEU) *Biosensor Study*, \$72,615 (DC \$49,000; IC \$25,615), Jul 2014 – Jun 2015. (Fundraising credit goes to Matthew Goodwin.)

[NIH13] Jayashree Kalpathy-Cramer (PI), Michael Chiang (PI), Deniz Erdogmus (coI), Jennifer Dy (I), *Automated Classification of Retinopathy of Prematurity using Machine Learning*, NIH (NEI-1R21EY022387), \$482,166 (DC \$275,000; IC \$207,166) , Sep 2013 – Aug 2015. NEU budget was \$155,500 (DC \$100,000; IC \$55,500). My share was \$80,685 (DC \$51,888; IC \$28,797).

[NSF13] Deniz Erdogmus (PI, NEU), *Adaptive Brain Computer Interfaces Subaward to CSL at NEU*, NSF-BU-CELEST (SMA-0835976), \$344,263 (DC \$221,391; IC 122,872), Mar 2013 – Feb 2015.

[DHS12a] Mieczyslaw Kokar (PI, NEU), David Kaeli (coPI, NEU), Engin Kirda (coPI, NEU), Deniz Erdogmus (coPI, NEU), *Secure Computing through Controlled Diversity*, DHS, \$698,792 (DC \$450,000; IC \$248,792), Jul 2012 – Dec 2015. My share was \$139,758 (DC \$89,877; IC \$49,881). ***Accepted, not funded due to sequester.** {Not included in fundraising statistics}

[DHS12] Deniz Erdogmus (PI, NEU), *Robust Decision Level Multimodal Sensor Fusion for Threat Detection*, DHS/PNNL/ALERT, \$40,000 (DC \$25,725; IC \$14,275), Jul 2012 – Sep 2012.

[NSF12b] Lee Makowski (PI, NEU), Dana Brooks (coPI, NEU), Deniz Erdogmus (coPI, NEU), *Precise Characterization of Conformational Ensembles*, NSF (MSB-1158340), \$657,070 (DC \$422,553; IC \$234,517), Jul 2012 – Jun 2015. My share is \$207,600 (DC \$133,500; IC \$74,100).

[NSF12a] Todd Leen (PI, OHSU; then moved to NSF), Deniz Erdogmus (coPI, NEU), Steve Kazmierczak (PI at OHSU after Leen moved to NSF), *SHB-Small: Robustly Detecting Clinical Laboratory Errors*, NSF (IIS-1118061), \$500,000 (DC \$334,129; IC \$165,871), Dec 2011 – Nov 2015 (24m NCE). My share was \$256,715 (DC \$165,090; IC \$91,625).

[NIH12] D. Erdogmus (PI, subaward at NEU; B. Oken is PI, NIH-K24 at OHSU), *Signal Processing Support for Oken-NIH-K24 Midcareer Development Grant*, OHSU (via NIH-K24), \$56,642 (DC \$52,450; IC \$4,192), Jan 2012 – Dec 2013. 8% IC rate is imposed by the agency.

[NSF11] Gunar Schirner (PI, NEU), Deniz Erdogmus (coPI, NEU), Kaushik Chowdhury (coPI, NEU), Taskin Padir (coPI, PI at WPI), *CPS-Medium: Collaborative Research: Holistic Design Methodology for Automated Implementation of Human-in-the-Loop Cyber-Physical Systems*, NSF (CPS-1136027), \$1,650,000, Sep 2012 – Aug 2015. NEU budget is \$1,250,000 (DC \$806,500; IC \$443,500). My share is \$437,000 (DC \$281,030; IC \$155,970). This proposal is my first mentoring outcome as a relatively senior researcher in which I enabled the formation of a successful collaboration involving three new investigators with no previous federal funding.

[AD11] Gunar Schirner (PI, NEU), David Kaeli (coPI, NEU), Dana Brooks (SP, NEU), Deniz Erdogmus (SP, NEU), Vinay Ingle (SP, NEU), Nick McGruer (SP, NEU), *Integrating an Active Learning Platform into the ECE Curriculum*, Analog Devices, DC \$150,000, Aug 2011 – Jul 2013. My share was DC \$22,500.

[NIH11] Dana Brooks (PI, NEU), Deniz Erdogmus (coI, NEU), Jennifer Dy (coI, NEU), *Interactive Image Segmentation*, NIH (Supplement to Utah-CIBC), \$193,833 (DC \$124,652; IC \$69,181), Jan 2012 – Dec 2013. My share was \$62,200 (DC \$40,000; IC \$22,200).

[MGH10] Kevin Oh (PI, MGH), Gregory Sharp (coI, MGH), Deniz Erdogmus (coI, NEU), *Feasibility of Incorporating Diffusion Tensor Imaging (DTI) Tractography into Radiation Treatment Planning for High-grade Gliomas*, MGH Spiro Seed Grant, DC \$50,000, Aug 2010 – Jul 2011. My share was DC \$19,625, Sep 2010 – Apr 2011.

[NSF10] Izhak Shafran (PI, OHSU), Deniz Erdogmus (PI at NEU, Co-PI), Kathleen Grant (Co-PI, OHSU & ONPRC), *Collaborative Research: CDI-Type I: Computational Models for the Automatic Recognition of Non-Human Primate Social Behaviors*, NSF (BCS-1027724), \$733,540 (DC \$?; IC ?); My share was \$155,767 (DC \$102,313; IC \$53,454), Oct 2010 – Sep 2013.

- [NSF09] Deniz Erdogmus (PI), Rupal Patel (Co-PI), *RSVP IconCHAT – A Brain Computer Interface for Icon-based Communication*, NSF (IIS-0914808), \$499,988 (DC \$330,563; IC \$169,435), Sep 2009 – Aug 2012. (REU Supplement of DC \$4,100 received in Dec 2009). My share was \$302,460 (DC \$196,000; IC \$106,460).
- [NIH09] M. Fried-Oken (PI, OHSU), D. Erdogmus (Co-I), B. Roark (Co-I, OHSU), B. Oken (Co-I, OHSU), *Translational Refinement of an Adaptive Communication System for Locked-in Patients*, NIH (1R01DC009834-01), \$3,102,242 (DC ?; IC ?), Feb 2009 – Jan 2014. My share was \$695,283 (DC \$456,464; IC \$238,820)}.
- [NLMFF08] Deniz Erdogmus (PI, OHSU), Lois Black (coPI, OHSU), Jan van Santen (coI, OHSU), Brian Roark (coI, OHSU), *ERP Based Communication Device for Nonverbal Children on the Autism Spectrum*, Nancy Lurie Marks Family Foundation, DC \$96,423, Feb 2008 – Jan 2009. My share was DC \$84,000.
- [NSF07] Deniz Erdogmus (PI, OHSU), Misha Pavel (coPI, OHSU), Holly Jimison (coPI, OHSU), *HRI: Assessing Cognitive Function from Interactive Agent Behavior*, NSF (IIS-0713690), \$450,000 (DC \$290,000; IC \$160,000), Oct 2007 – Sep 2010 (Extended to Sep 2011). My share was \$345,000 (DC \$223,000; IC \$122,000). Amount transferred to NEU was \$383,225. Amount spent at NEU was \$322,225 after \$61,000 subaward back to OHSU.
- [PPS07] Deniz Erdogmus (PI, OHSU), *Automatic Semicustom Shoe Insole Recommendation System Based on 3D Foot Scans*, Pressure Profile Systems & E-Soles, DC \$25,000, May 2007 – Jul 2007. (Fundraising credit goes to Jan van Santen.)
- [NSF06] Deniz Erdogmus (PI, OHSU), Misha Pavel (coPI, OHSU), *Nonparametric Nonlinear Adaptive Detection and Estimation*, NSF (ECS-0622239), \$240,000 (DC \$155,000; IC \$85,000), Oct 2006 – Sep 2009 (Extended to Sep 2010). My share was \$220,000 (DC \$142,000; IC \$78,000). Amount transferred to NEU was \$172,037. Amount spent at NEU was \$166,037 after \$6,000 subaward back to OHSU.
- [INTEL06] Tamara Hayes (PI, OHSU), Misha Pavel (coPI, OHSU), Todd Leen (coI, OHSU), Eric Wan (coI, OHSU), Deniz Erdogmus (coI, OHSU), Holly Jimison (coI, OHSU), Brian Roark (coI, OHSU), Paul Hosom (coI, OHSU), Jeffrey Kaye (coI, OHSU), Steve Fickas (coI, OHSU), Yvonne Michael (coI, OHSU), Jan van Santen (coI, OHSU), *Behavioral Assessment & Intervention Consortium – OHSU Site*, Intel (OHSU-BAIC), \$3,122,846 (DC \$2,839,000; IC 283,846), Sep 2006 – Aug 2009. My share was \$203,000 (DC \$185,000; IC \$18,000).
- [BSIF06] Xubo Song (PI, OHSU), Deniz Erdogmus (coPI, OHSU), *Noninvasive Model-based Tumor Tracking for Effective Radiation Therapy of Lung Cancer*, Oregon Biomedical Sciences Innovation Fund, \$98,240 (DC only), Jul 2006 – Jun 2007. My share was DC \$49,120.
- [NIH06] Steven Jacques (PI, OHSU), Ken Lee (coI, OHSU), Deniz Erdogmus (coI, OHSU), Motomi Mori (coI, OHSU), *Optical Imaging of Blood Perfusion to Predict Treatment Failure*, NIH (HL-084013), \$781,402 (DC \$504,000; IC \$277,402), Apr 2006 – Mar 2009. My share was \$160,000 (DC \$105,000; IC \$55,000).
- [MRF05] Deniz Erdogmus (PI, OHSU), *Noninvasive Lung Tumor Tracking for Radiosurgery*, Oregon Medical Research Foundation, DC \$30,000, Dec 2005 – Nov 2006.
- [SHARP05] Deniz Erdogmus (PI, OHSU), Jan van Santen (coPI, OHSU), *Development of a Computerized Rey-Osterrieth Complex Figure Testing and Scoring Platform*, Steve Sharp Foundation, DC \$15,000, Oct 2005 – Sep 2006. My share was DC \$15,000.
- [NSF05] Deniz Erdogmus (PI, OHSU and then NEU), Eric Wan (coPI, OHSU), Misha Pavel (coPI, OHSU), *Robust Information Filtering Techniques for Static and Dynamic State Estimation*, NSF (ECS-0524835), \$239,998 (DC \$155,000; IC \$84,998), Oct 2005 – Sep 2008 (Extended to Sep 2010). My share was \$205,000 (DC \$132,250; IC \$72,750). Amount transferred to NEU was \$42,417.
- [DARPA05] Misha Pavel (PI, OHSU), Deniz Erdogmus (coPI, OHSU & NEU), *Neurotechnology for Intelligence Analysts: An Integrated Systems Approach*, Subcontract from Honeywell (Santosh Mathan, PI), DARPA (HM1582-05-C-0046), (Phase 1) \$135,000 (DC \$87,000; IC \$48,000), Oct 2005 – Dec 2006, (Phase 1b) \$100,000 (DC \$65,000; IC \$35,000), Mar 2007 – Aug 2007, (Phase 2) \$430,000 (DC \$280,000; IC \$150,000), Nov 2007 – May 2009 (Extended to Aug 2009). My share was \$65,000 (DC \$42,000; IC \$23,000) for Phase 1a; \$50,000 (DC \$32,250; IC \$17,750) for Phase 1b; \$200,000 (DC \$129,000; IC \$71,000) for Phase 2. Amount transferred to NEU was \$22,860. I was a consultant in Phase 3 - not included in this record.
- [DARPA04] Misha Pavel (PI, OHSU), Deniz Erdogmus (coPI), *Augmented Cognition: Amplification of Attention for Better Decisions*, Subcontract from Honeywell (Santosh Mathan, PI), DARPA and the US Army Natick Center (DAAD-16-03-C-0054), \$315,000 (DC \$203,000; IC \$112,000), Phase 3&4: Oct 2004 – Dec 2006. My share was \$155,000 (DC \$100,000; IC \$55,000).

Expired Internally Funded Projects

- [NEU16] Sheng-Che Yen (PI), Deniz Erdogmus (coPI), *EEG-guided Robotic Mirror Therapy for Neurorehabilitation*, NEU-Tier1, DC \$50,000, Jul 2016 – Jun 2017. My share is DC \$33,000.
- [MGHPCC13] Deniz Erdogmus (PI, NEU), Jeff Lichtman (coPI, Harvard University), David Boas (coPI, MGH-Martinos), *Automated Segmentation of Vessel Network Structures in Large Image Stack Sets*, MGHPCC Seed, DC \$120,400, May 2013 – Apr 2014. My share was DC \$50,400.
- [NEU13b] Lisa Feldman Barrett (PI), Karen Quigley, Stephen Intille, Deniz Erdogmus, Dana Brooks, Jennifer Dy, Murat Akcakaya, *Finding Underlying Manifolds of Large-Scale Complex Biosignal Dynamics*, NEU-VPR Tier 1 Seed Grant, DC \$50,000, Jul 2013 – Jun 2013. My share was DC \$30,000.

- [NEU13a] Raymond Fu (PI), Yizhou Sun, Karen Quigley, Deniz Erdogmus, Dana Brooks, *Finding Underlying Manifolds of Large-Scale Complex Biosignal Dynamics*, NEU-VPR Tier 1 Seed Grant, DC \$50,000, Jul 2013 — Jun 2013. My share was DC \$30,000.
- [NEU12] Matthew Goodwin (PI), Deniz Erdogmus (Co-PI), *Visualizing Physiological Arousal in Real-Time to Enhance Communication, Self-Regulation, and Learning in Autism Spectrum Disorder*, NEU-VPR Tier 1 Seed Grant, DC \$50,000, Jul 2012 — Jun 2013. My share was DC \$12,500.
- [NEU11] Dagmar Sternad (PI, NEU), Deniz Erdogmus (coPI, NEU), Ying-Yee Kong (coPI, NEU), Therese O’Niel-Pirozzi (coPI, NEU), *Assessment of Effect of Central Fatigue on Cognitive, Motor, and Sensory Function*, NEU-Tier1 Seed Grant, DC \$50,000, May 2011 — Apr 2012. My share was DC \$10,000.
- [CDSP11] Deniz Erdogmus (PI), Maura Iversen (Co-PI), Gunar Schirner (Co-I), Kaushik Chowdhury (Co-I), *Activity Monitoring with Wearable and Environmental Sensors for Smart Health and Wellbeing*, NEU-CDSP Seed Grant, DC \$9,812, Jan 2011 — Apr 2011. My share was DC \$9,812.
- [OHSU05] Eric Wan (PI, OHSU), Alex T. Nelson (PI, Inovise), Greg Larsen (coI, OHSU&VA), Deniz Erdogmus (coI, OHSU), Holly Jimison (coI, OHSU), *Heart Function Characterization through Application of Adaptive Signal Processing and Machine Learning to Acoustic and Electrocardiogram Signals*, OHSU Bioengineering and Information Sciences Research Awards Program, DC \$99,906, Apr 2005 — Mar 2006. My share was DC \$25,000.

Donations

[Gtec12] Valued at \$60,000 in software licenses (15 x C API + 15 x Matlab API), Nov 2012. {Not included in fundraising statistics} On multiple occasions, I negotiated 30%-50% volume or preferred customer discount when buying equipment from multiple companies for purchases around \$50K-\$100K.

Personal and Team Awards

- NEU-COE Faculty Fellowship** awarded to successful midcareer faculty (inaugural recipient), Sep 2014
- NEU-COE Soren Buus Outstanding Research Award** for research conducted at Northeastern, Apr 2014
- NSF CAREER Award** for research and educational work in brain interfaces, Jan 2012
- Invited Participant** at the National Academy of Engineers (NAE) Frontiers in Engineering Education Workshop, Dec 2010
- Final-5** in the HHMI Diadem Challenge with PhD student Erhan Bas; from over 125 internationally participating teams, Aug 2010
- Best Paper Award** from the Augmented Cognition Society, AUGCOG 2006, Oct 2006
- Outstanding Person of the Year** in Science and Technology, JCI-Turkey, Sep 2006
- Outstanding Collaboration Award**, OHSU School of Engineering, for work with Rad Onc, Jun 2006
- Best Student Paper Award**, Robert Jenssen, ICASSP 2005, Mar 2005 (I was a co-author)
- Young Investigator Award**, International Neural Network Society 2004, Jul 2004
- Young Author Best Paper Award**, IEEE Signal Processing Society 2003, May 2004
- Recognition** of the PI for Significant Contributions to NSF ECS-9900394, 2003
- Awards for Continued Academic Excellence**, University of Florida, Gainesville, FL, August 1999 – May 2002
- Fellowship**, ECE Department, University of Florida, Gainesville, FL, August 1999 – July 2000
- 1st Place**, European Council of International Schools Math Contest, Athens 1993 (Senior)
- 1st Place**, European Council of International Schools Math Contests, Paris 1992 (Junior)
- Final-12**, Turkish Math Olympiad (3-year process to select team of 5 for the Int Math Olympiad), 1991 – 1993
- Honor Pins**, AHSME, AIME, and various other high school math exams (US/Canada/France), 1991 – 1993

Awards of Students

- RESNA Design Award**, Matt Higger and Fernando Quivira won the RERC AAC R&D Award with Shuffle Speller, Jun 2017
- Best Student Paper Finalist**, Yeganeh Marghi, EMBC 2017, Jul 2017
- Best Student Paper Finalist**, Umut Ozertem, ICASSP 2006, May 2006

TEACHING ACTIVITIES

I favor project-based learning. Mathematical abstraction ability and rigor is a primary consideration for me. I immerse students of all levels into existing research projects, where they need to work as part of a team. I emphasize the importance of scientific methodology, clarity of thought, precision of language, and necessity of breadth. I encourage undergraduate students to join research activities with graduate students. This allows PhD students to develop mentoring skills, while letting undergraduate students unleash creativity and talent on research problems. I involve high school students and teachers in research. I pay special attention to diversity and place emphasis on the composition of my group from this perspective.

Postdocs {Current 1 woman, 1 man; former 1 woman, 7 men} * indicates former PhD student

Dr. Tales Imbiriba	Mar 2019 – present	
Dr. Sumientra Rampersad	Nov 2014 – present	
Dr. James McKanna	Mar 2014 – Dec 2017	(Next Position: Wayfair)
Dr. Jamshid Sourati*	Feb 2017 – May 2017	(Next Position: Boston Childrens Hospital)
Dr. Hooman Nezamfar*	May 2016 – Apr 2017	(Next Position: Genapsys)
Dr. Baris Fidaner	Apr 2016 – Dec 2016	(Next Position: Freelancer)
Dr. Devrim Kaba	Apr 2014 – Aug 2014	(Next Position: GE Research)
Dr. Murat Akcakaya	Apr 2012 – Aug 2014	(Next Position: University of Pittsburgh)
Dr. Umut Orhan*	Jan 2013 – Feb 2013	(Next Position: Honeywell Research)
Dr. Catherine Huang*	Jan 2010 – Apr 2010	(Next Position: Intel Labs)

PhD Students {Current 8 women, 6 men; former 8 women, 12 men}

Andac Demir	EEG-guided Stimulation	Sep 2017 – present
Aziz Kocanaogullari	Active Learning for BCIs	Sep 2016 – present
Bahar Azari	Brain Signal Analysis	Sep 2017 – present
Berkan Kadioglu	Robust Inference	Sep 2017 – present
Bruna Girvent	BCI for Intel ACAT	Jul 2014 – present
Ilkay Yildiz	Retinal Image Analysis	Sep 2017 – present
Jaimie Spahr	TMS-based Motor Modeling	Sep 2018 – present
Mo Han	Vision Evidence for Prosthetics	Sep 2017 – present
Navid Akbar	TMS and DNN	Jan 2017 – present
Ozan Ozdenizci	EEG Evidence for Prosthetics	Sep 2016 – present
Peng Tian	Retina Image Analysis	Jan 2016 – present
Veysi Yildiz	Retina Image Analysis	Jan 2017 – present
Yagmur Gunay	EMG Evidence for Prosthetics	Sep 2016 – present
Yeganeh Marghi	EEG & Reinforcement Learning	Sep 2014 – present

- [D20] Paula Gonzalez-Navarro, *Signal Models for Fusion of Multiple Brain Responses and Context Evidence Sources in EEG-based BCIs*, PhD Dissertation, NEU, Boston, MA, Dec 2018. (Next Position: Microsoft, Redmond, WA)
- [D19] Sadegh Salehi, *Intelligent Magnetic Resonance Imaging: Application in Fetal MRI*, PhD Dissertation, NEU, Boston, MA, Apr 2018. (Next Position: Hyperfine Research Inc, New York City, NY)
- [D18] Fernando Quivira, *Human-in-the-loop Assistive Cyber Physical System Control Using Physiological Signals*, PhD Dissertation, NEU, Boston, MA, Oct 2017. (Next Position: Philips, Andover, MA)
- [D17] Marzieh Haghighi, *EEG-assisted Modulation of Sound Sources in the Auditory Scene*, PhD Dissertation, NEU, Boston, MA, Oct 2017. (Next Position: Postdoc at Harvard Med School & MIT, Cambridge, MA)
- [D16] Jamshid Sourati, *Information Theoretic Active Learning in Unsupervised and Supervised Problems*, PhD Dissertation, NEU, Boston, MA, Dec 2016. {Co-advisor: Jennifer Dy} (Next Position: Postdoc at SPIRAL/CSL)
- [D15] Matt Higger, *Recursive Bayesian Coding for AAC Systems*, PhD Dissertation, NEU, Boston, MA, Aug 2016. (Next Position: Postdoc Fellow at Harvard Medical School, BWH-PNL, Boston, MA)
- [D14] Mohammad (Sina) Moghadamfalahi, *Language Model Assisted EEG-based Brain Computer Interface for Typing*, PhD Dissertation, NEU, Boston, MA, Aug 2016. (Next Position: Honeywell Labs, Minneapolis, MN)
- [D13] Matineh Shaker, *Manifold Learning and Unwrapping Using Density Ridges*, PhD Dissertation, NEU, Boston, MA, Aug 2016. (Next Position: Geometric Intelligence, New York City, NY)
- [D12] Emre Onuk, *Bayesian Estimation of Protein Conformation Relative Abundances Using Small Angle X-ray Scattering*, PhD Dissertation, NEU, Boston, MA, Aug 2016. (Next Position: Postdoc at UCLA RadOnc, Los Angeles, CA)
- [D11] Hooman Nezamfar, *FlashLife™, A Context-Aware Code-VEP based Brain Computer Interface for Daily Life Using EEG Signals*, PhD Dissertation, NEU, Boston, MA, Apr 2016. (Next Position: Postdoc at CSL)

- [D10] Asiéh Ahani, *Icon-based Communication Through a Brain Computer Interface*, PhD Dissertation, NEU, Boston, MA, Apr 2016. (Next Position: Visual IQ, Boston, MA)
- [D9] Nastaran Ghadar, *Automatic Recognition of Primate Behaviors and Social Interactions from Videos*, PhD Dissertation, NEU, Boston, MA, Apr 2015. (Next Position: Draper Labs, Cambridge, MA)
- [D8] Esra Ataer-Cansizoglu, *Retinal Image Analytics: A Complete Framework from Segmentation to Diagnosis*, PhD Dissertation, NEU, Boston, MA, Apr 2015. (Next Position: MERL, Cambridge, MA)
- [D7] Sheng You, *Automatic Sublingual Microcirculatory Image Analysis and Quantitative Assessment of Disease Severity*, PhD Dissertation, NEU, Boston, MA, Mar 2014. (Next Position: Presage Biosciences, Seattle, WA)
- [D6] Umut Orhan, *RSVP KeyboardTM: An EEG Based BCI Typing System with Context Information Fusion*, PhD Dissertation, NEU, Boston, MA, Dec 2013. (Postdoc at CSL briefly; Next Position: Honeywell, Seattle, WA)
- [D5] Tian Lan, *Feature Extraction, Feature Selection, and Dimensionality Reduction Techniques for Brain Computer Interfaces*, PhD Dissertation, OHSU, Portland, OR, Oct 2011. (Co-advisor: P. Heeman; Next Position: Facebook, San Jose, CA)
- [D4] Erhan Bas, *Extracting Structural Information on Manifolds from High Dimensional Data and Connectivity Analysis of Curvilinear Structures in 3D Biomedical Images*, PhD Dissertation, NEU, Boston, MA, (tentatively) Aug 2011. (Next Position: Postdoc with G. Myers at HHMI Janelia Farms Campus, Ashburn, VA)
- [D3] Olexiy Kyrgyzov, *Non-redundant Tensor Decomposition*, PhD Dissertation, NEU, Boston, MA, Aug 2010. (Next Position: Postdoc with A. Souloumiac, OpenVibe2 Project at LIST-CEA, Paris, France)
- [D2] Yonghong (Catherine) Huang, *Event-related Potentials in Electroencephalography: Characteristics and Single-trial Detection for Rapid Object Search*, OHSU, Portland, OR, Jun 2010. (Co-advisor: M. Pavel; Postdoc at CSL briefly; Next Position: Intel Energy Systems Research Lab, Hillsboro, OR)
- [D1] Umut Ozertem, *Locally Defined Principal Curves and Surfaces*, PhD Dissertation, OHSU, Portland, OR, Aug 2008. (Next Position: Yahoo! Research, Sunnyvale, CA)

MS Thesis Students {Current 0 women, 1 man; former 1 woman, 3 men}

- Aisheng Guo EMG-based Hand Gesture Classification Jan 2019 – present
- [T4] Alan Haghy, *RSVP KeyboardTM: Comparison of Emotiv[®] EEG and g.Tec g.USBamp Amplifier*, MS Thesis, NEU, Boston, MA, Apr 2016. (Next Position: Lionbridge, Boston, MA)
- [T3] Golnaz Eftekhari, *Adaptive BCI-Controller for Dynamic Systems*, MS Thesis, NEU, Boston, MA, Jul 2015. (Next Position: Researcher at BU Medical School, Boston, MA)
- [T2] Haofu Liao, *High Performance Kernel Smoothing Library For Biomedical Imaging*, MS Thesis, NEU, Boston, MA, Apr 2014. (Next Position: PhD student at URochester)
- [T1] Matt Higger, *Robust Fusion Methods for Distribution Shifts*, MS Thesis, NEU, Boston, MA, Mar 2013. (Next Position: PhD student at NEU with D. Erdogmus)

MS Project Students {Current 0M/0W; former 5 women, 9 men}

- Dharanish Kedariseti (Volunteer) Retina Image Analysis and ROP Jan 2016 – Aug 2016
- The MS Project option has been discontinued in NEU-ECE starting in 2014.*
- [13] Athena Nouhi, *Detecting Skin Conductance Responses and Artifacts in Electrodermal Activity Signal to Predict Stereotypical Behaviors in Individuals with Autism*, MS Project, Northeastern University, Boston, MA, Dec 2013.
- [12] Chen Yang, *Constrained Optimization of Arterial Blood Dynamics Models to Predict Arterial Input Function and Tissue/Tumor Classification Using Dynamic Contrast Enhanced MRI*, MS Project, Northeastern University, Boston, MA, Apr 2012. (Co-advised by D. Kalpathy-Cramer)
- [11] Ang Li, *On-line Adaptation of Regularized Quadratic Discriminant for ERP-based BCI Systems*, MS Project, Northeastern University, Boston, MA, Apr 2012. (Co-advised by U. Orhan)
- [10] Tanarat Dityam, *Cognitive Load Estimation Using EEG*, MS Project, Northeastern University, Boston, MA, Jun 2011.
- [9] Sandeep Padmakumar, *Tracking of Objects in Video Using the Kalman Filter*, MS Project, Northeastern University, Boston, MA, Apr 2011.
- [8] Wei-Hsuan Liao, *A Method to Improve EEG Signal Classification Accuracy in BCI*, MS Project, Northeastern University, Boston, MA, Apr 2011.
- [7] Nikhila Srikanth, *Efficient Implementation of Principal Curve Tracing*, MS Project, Northeastern University, Boston, MA, Apr 2011. (Co-advised by E. Bas)
- [6] Dandan Hou, *3D Image Segmentation: Seeded Region Growing and Hybrid Level Set Algorithms*, MS Project, Northeastern University, Boston, MA, Apr 2011.
- [5] Kartik Pasupathy, *Tracing Axons and Neural Dendritic Trees in Confocal Microscopy Image Stacks*, MS Project, Northeastern University, Boston, MA, Apr 2010.

- [4] Joseph Bailey, *Artifact Filtering Methods for Improved P300 ERP Detection*, MS Project, Northeastern University, Boston, MA, Dec 2009.
- [3] Ala Mullangi, *Constrained Clustering for Content-based Image Retrieval*, MS Project, Northeastern University, Boston, MA, Dec 2009.
- [2] Prasanjit Mondal, *Constrained Clustering for Image Segmentation*, MS Project, Northeastern University, Boston, MA, Aug 2009.
- [1] Burkay Dorter, *Principal Curve Approach to Post-nonlinear Blind Source Separation with Sparse Sources*, MS Project, Northeastern University, Boston, MA, Dec 2008.

Capstone & REU Advising

CAP18	Amaresh Emani, Michael Rossi Santomauro, Alexander Embry, Anthony Montuoro developed a robot hand that is controlled with human intent inference through camera and EMG evidence fusion. Jul 2018 – Dec 2018.				
CAP16b	Jenna Czeck, Harrison Dimmig, Filmon Elias, Gen Ohta, Francesca Sally, Eric Tseng developed a context-aware gaze-based interface for assistive technology. Jul 2016 – Dec 2016.				
CAP16a	Gerald LaMountain, Yinyin Ye, Henry Yan, Yufeng Wang developed a brain interface for Android devices. Jul 2016 – Dec 2016.				
CAP15b	James McLean, Sam Rendall, Laurel McCallister, Gina Spiri, Wyatt Bertorelli developed a multimodal sensory stimulation paradigm for a binary communication brain interface. Capstone advisor was DiMarzio. Jul 2015 – Dec 2015. 2 nd Place, NEU-ECE Capstone Project Competition.				
CAP15a	An Khang Vo, Ayumu Oda, Boris Mataev, Daniel Song, Daniel Thompson, Zachary Berry developed a tactile-stimulation based brain interface for binary communication. Capstone advisor Shafai. Jul 2014 – Apr 2015.				
CAP12	Pedro Lopes, Basel Magfory, James Barron, Mohamed Kante, Nick Aquino, Rishi Faldu developed iCraft – an eye gaze controlled self-feeding robotic arm. Capstone advisor was Waleed Meleis. Jul 2011 – Apr 2012. 1 st Place, NEU-ECE Capstone Project Competition.				
CAP11a	Barry Briggs, Dana Lopes, Thayne Henry, Sam Bennett, Shane Mulkerrin developed a voice controlled wheelchair. Capstone advisor was Shafai. Jun 2010 – Apr 2011. 1 st Place, NEU-ECE Capstone Project Competition.				
CAP11b	Anthony DiPasquale, Jeremy Egan, Brian Nelson, Huy Tran, Jason Turcotte, Frank Vieira developed a gaze controlled assistive robotic arm. Capstone advisor was Meleis. Jun 2010 – Apr 2011. 2 nd Place, NEU-ECE Capstone Project Competition.				
CAP11c	Nathaniel Kaye, Hamilton Kibbe, Boris Lippeve, Kyle Mueller, Michael Nedoroscik, Rafael Perez controlled a flight simulator with an EEG-BCI. Capstone advisor was Meleis. Jun 2010 – Apr 2011. 3 rd Place, NEU-ECE Capstone Project Competition.				
CAP10	Saumitro Dasgupta, Mike Fanton, Jonathan Pham, Mike Willard controlled an iCreate with an EEG-BCI. Capstone advisor was Shafai. Sep 2009 – Apr 2010. 1 st Place, NEU-ECE Capstone Project Competition. NEU-CDSP Workshop Capstone Project Recognition Award in Mar 2010. Received \$4,100 NSF REU Supplement for the team to attend NCUR 2010 at U of Montana.				
REU19	Deana Prochnau	BIOE-2022	BCI	worked with Berkan	Provost Grant
	Evelyn D’Elia	MIE-2019	RL	worked with the FISH team	
	Spencer Jacobs-Skolis	ECE-2022	EMG	worked with Mat/Yagmur	
	Zachary Bauer	BIOE-2020	TMS	worked with Mat/Tarik	
REU18	Deana Prochnau	BIOE-2022	BCI	worked with Berkan	Provost Grant
	Evelyn D’Elia	MIE-2019	RL	worked with the HANDS team	
	Noel Prince	ECE-2022	DNN	worked with Berkan/Geoffrey	
	Spencer Jacobs-Skolik	ECE-2022	EMG	worked with Mat/Yagmur	
REU17	Alex Piers	ECE-2017	BCI	worked with Fernando	Honors Grant
	Chris Babroski	ECE-2017	BCI	worked with Fernando/Matt	Provost Grant
	David Howie	ECE-2017	BCI	worked with Matt	
	Michael Harris	ECE-2017	BCI	worked with Fernando	
REU16	Alex Piers	ECE-2017	BCI	worked with Fernando	
	Chris Babroski	ECE-2017	BCI	worked with Fernando	
	Harrison Dimmig	ECE 2017	BCI	worked with Fernando	Provost Grant
	James McLean	ECE-2016	BCI	worked with Fernando/Bruna	
	Mark Higger	COE-2019	BCI	worked with Matt	
	Michael Harris	ECE-2017	BCI	worked with Fernando	
	Tom Hoang	ECE-2017	BCI	worked with Fernando	
REU15	James McLean	ECE-2016	BCI	worked with Fernando	Coop, REU Supp
	Harrison Dimmig	ECE 2017	BCI	worked with Fernando	
	Mark Higger	COE-2019	BCI	worked with Matt	

	Saleem Karamali	Occidental	BCI	worked with Sina	CELEST REU Supp
	Tom Hoang	ECE-2017	BCI	worked with Matt	
REU14	Daniel Song	ECE-2015	BCI	worked with Abhi	Provost Grant
	Gerald LaMountain	ECE-2017	BCI	worked with Matt	
	Marilyn Mauclaire	BNS-2017	BCI	worked with Shalini	
REU13	Aaron Harlap	ECE-2015	BCI	worked with Umut	
	Cassandra Buzby	Bio-2016	BCI	worked with Shalini	Provost Grant
	Jonathan Archbold	Psych-2013	BCI	worked with Shalini	
	Luchen Zhang	ECE-2014	BCI	worked with Hooman	
	Marc Thomas	ECE-2016	BCI	worked with Hooman	Provost Grant
	Richard Zhao	ECE-2014	BCI	worked with Shalini	
	Tushar Swamy	ECE-2015	BCI	worked with Umut	
	Zhen Hang Jiang	ECE-2014	BCI	worked with Umut	
REU12	Antonio Rufo	ECE-2013	BCI	worked with Kaeli/me	
	James McLean	ECE-2016	BCI	worked with Hooman	Provost Grant
	Jonathan Archbold	Psych-2013	BCI	worked with Shalini	
	Rhodesherdeline Limage	ECE-2016	Image	worked with me	CENSSIS REU Supp
	Robert St. Denis	ECE-2012	BCI	worked with Hooman	
REU11	Gary Wong	Roxbury CC	BCI	worked with Hooman	CENSSIS REU Supp
REU10	Daniel Kern	ECE-2011	BCI	worked with Hooman	Provost Grant
	Gregory Shimonov	ECE-2011	BCI	worked with Hooman	
	Mike Kasparian	BU	BCI	worked with Hooman	
REU07	Arda Ozertem	Ankara U	PatRec	worked with me	
REU06	Arda Ozertem	Ankara U	Image	worked with me	

TBP09 Academic Advisor Tau Beta Pi Northeastern University Apr 2009 – May2010

Enabling Engineering Student Interest Group Capstone and individual undergraduate research project with assistive technology themes sparked great interest in the engineering student body. With the leadership of W. Meleis, a student group was formed in 2014.

K-12 Outreach

- K12 2019** Science Fair Project: Brian Ramos (w/ John Menkens @ East Boston High School), Jan-Apr 2019.
- K12 2018** YSP: Ciarra Coston, Eren Gulbas, Jul 2018.
Cambridge Science Festival: BCI Activity, Apr 2018
Science Fair Project: Ooviya Sathiyamoorthy (w/ John Menkens @ East Boston High School), Jan-Apr 2018.
- K12 2017** Building Bridges Group Activity on BCI, Dec 2017
- K12 2015** YSP: Katie Bradford, Jacob Farnham
- K12 2014** YSP: Kun Yi Li, Eric Lehman
- K12 2013** YSP: Rachel Guen, Laura Bergemann
RET: Kurt Lichtenwald (Gloucester HS)
- K12 2012** YSP: Amy Schmitt, John Shen
RET: Michael Hirsh (Needham HS), Dan Smalley (John D O'Bryant HS, Boston)
Presentation at Nashua HS South Robotics Club, Jan 2012
Presentation and demo for the Center for Talented Youth (by JHU at NEU), Dec 2012
Presentation for retired engineers, NEU Center for STEM Education RESEED, Dec 2012
- K12 2011** YSP: Christopher Kaffine, Connor Myers, Yuanchen Zhang
RET: Dan Smalley
- K12 2010** YSP: Reem Alami, Jevon Yu
RET: Paul Marques, Thomas Picanco
- K12 2009** YSP: Shweta Kitchloo, Parthiv Patel
RET: Nora Linskey, Thomas Picanco
- K12 2008** Saturday Academy Apprenticeship: Kenneth Qian
- K12 2007** Saturday Academy Apprenticeship: Hanna Choi
- K12 2006** Mentored William Fan and Edward Nguyen on *Computer Interface Design for Cognitive Load Assessment* between Dec 2005 – May 2006. **3rd Place** at the Intel International Science Fair, IEEE Engineers in Science Award, IEEE Excellence in Computer Software Award. Various local, regional, and state 1st place awards along the way.

PhD Committee Service

- 2018** Ala Mullangi (NEU-BIOE, Jeff Ruberti)
- 2017** Shen Feng (NEU-ECE, Gunar Schirner)
Velin Dimitrov (NEU-ECE, Taskin Padir)
Xianchao Long (NEU-ECE, Taskin Padir)
- 2016** Narges Armanfard (McMaster-ECE, Jim Reilly)

CV: Deniz Erdogmus

- Seyhmus Guler (NEU-ECE, Dana Brooks)
 Andres Salazar (BU-Neuroscience, Frank Guenther)
2015 Byron Galbright (Boston University – Neuroscience, Frank Guenther)
2014 Veronica Bolon (Universidade da Coruna – CS, Amparo Alonso Betanzos & Oscar Fontenla Romero)
 James Ross (NEU-ECE, Jennifer Dy)
 Pascal Brunet (NEU-ECE, Bahram Shafai)
2013 Binlong Li (NEU-ECE, Octavia Camps)
 Burak Erem (NEU-ECE, Dana Brooks)
 Jing Fan (NEU-ECE, Jennifer Dy)
 David Martinez (UDC-CS, Oscar Fontenla-Romero)
 Se-Woong Park (NEU-Bio, Dagmar Sternad)
 Noushin Golabchi (NEU-ECE, Dana Brooks)
2012 Robert Law (BU-Neuroscience, Frank Guenther)
 Yan Yan (NEU-ECE, Jennifer Dy)
 Donglin Niu (NEU-ECE, Jennifer Dy)
 Yue Guan (NEU-ECE, Jennifer Dy)
 Sean Lorenz (BU-Neuroscience, Frank Guenther)
 Shyamal Patel (NEU-ECE Jennifer Dy; HMS-Spaulding, Paolo Bonato)
2011 Jernej Zupanc (University of Ljubljana – CS, Branko Ster & Damjana Drobne)
 Srinivas Laxminarayan (NEU-ECE, Dana Brooks)
2010 Kristy Hollingshead (OHSU-CS, Advisor: Brian Roark)
 Adam Goodworth (OHSU-BME, Robert Peterka)
 Anindya Paul (OHSU-CSEE, Eric Wan)
2009 Volkan Vural (NEU-ECE, Jennifer Dy)
2008 Zhengdong Lu (OHSU-CSEE, Todd Leen)

MS Thesis/Project Committee Service

- 2018** Haoqing Li (NEU-ECE, Pau Closas)
 Peng Tian (NEU-Gordon, Faculty Advisor)
 Yagmur Gunay (NEU-Gordon, Faculty Advisor)
2017 Adam Perruzzi (NEU-Gordon, Faculty Advisor)
 Sadegh Salehi (NEU-Gordon, Faculty Advisor)
 Jingwei Liu (NEU-ECE, Taskin Padir)
2016 Matt Goh (NEU-Gordon, Faculty Advisor)
 Mohammad Moghadamfalahi (NEU-Gordon, Industry Advisor)
 Colin Roddy (NEU-Gordon, Committee Member)
2015 Fatemah Khazab (University of Flinders - CS, David Powers)
2013 Qu Tang (NEU-ECE, Stephen Intille)
 Sarah Brown (NEU-ECE, Jennifer Dy)
2012 Xiang Tang (NEU-ECE, Vinay Ingle; project)
2011 Heng Jiao (NEU-ECE, Octavia Camps; project)
 Teresa Mao (NEU-ECE, Octavia Camps)
 Daniel DeBolt (NEU-ECE, Yong-Bin Kim)
2010 Cansu Gonulalan (NEU-ECE, Octavia Camps)
 Arun Koushik Parthasaraty (NEU-ECE, Gilead Tadmor)

Visiting Scholars

- | | |
|--------------------------------------|---|
| Marc Martines-Gost | UPC-NEU Student Exchange for Senior Design Project, Feb 2019 – Aug 2019 |
| Francesc Lluís | UPC-NEU Student Exchange for Senior Design Project, Feb 2017 – Oct 2017 |
| Pere Garau | UPC-NEU Student Exchange for Senior Design Project, Mar 2016 – Oct 2016 |
| Halit Senberber | Institutional PhD Research Abroad Grant, Erciyes University, Mar 2016 – May 2016 |
| Dr. Hasan Zorlu | TUBITAK Research Abroad Grant, Erciyes University, Feb 2016 – Jan 2017 |
| Dr. Mujdat Cetin | Sabbatical at MIT & NEU, Sabanci University, Jul 2013 – Jun 2014 |
| Jonas Myhre | Norway Research Abroad Scholarship, University of Tromsø, Jan 2013 – Jun 2013 |
| Rongrong Fu | China Research Abroad Scholarship, Northeastern University (China), Nov 2012 – May 2014 |
| Dr. Jernej Zupanc | Slovenia Bilateral Research Grant, University of Ljubljana, Jul 2012 – Aug 2012 |
| Dr. Bekir Dizdaroglu | YOK Research Abroad Grant, Karadeniz Technical University, Jun 2011 – May 2012 |
| Dr. Jayashree Kalpathy-Cramer | Collaborator from OHSU, Oct 2010 – Apr 2011 |
| Jernej Zupanc | Fulbright Research Scholarship, University of Ljubljana, Sep 2009 – May 2010 |
| Fatih Talu | TUBITAK Research Abroad Scholarship, Firat University, Sep 2007 – Aug 2008 |

Courses

CV: Deniz Erdogmus

Mean of *overall instructor effectiveness* scores from student evaluations are in brackets.
EECE 2xxx-4xxx are undergrad; 5xxx are mixed undergrad/grad; 7xxx are grad courses.

EECE-2150 Intro to Circuits & Signals	{EECE-2410 at the time of pilots}
Fall 2013: 13 students (7 responses) [2.5]	{Revised pilot w/ lab, cotaught with Niedre}
Fall 2012: 12 students (9 responses) [3.7]	{New course pilot w/ lab, cotaught with McGruer}
EECE-2520 Linear Systems {Formerly EECE3464}	
Fall 2017: 18 students (15 responses) [2.3]	
Fall 2016: 17 students (7 responses) [3.4]	
Fall 2015: 15 students (6 responses) [3.4]	
Spr 2014: 27 students (23 responses) [2.8]	{Extra load - I filled emergency instructor need at last minute}
Spr 2012: 27 students (9 responses) [3.4]	
EECE-5644 Introduction to Machine Learning	
Fall 2018: 34 students (24 responses) [3.9]	{Coordinated with D. Brady covering 2 nd section}
Summer2 2018: 16 students (14 responses) [3.8]	{Extra compensation}
Summer1 2018: 29 students (15 responses) [4.1]	{Extra compensation}
Fall 2017: 68 students (46 responses) [3.2]	{Following Dy's lead; covered 2 nd section}
Fall 2016: 44 students (37 responses) [3.7]	{Following Dy's lead; covered 2 nd section}
EECE-5666 Digital Signal Processing	
Spr 2010: 32 students (13 responses) [3.4]	
Spr 2009: 5 students (3 responses) [4.0]	
EECE-7310 Modern Signal Processing	
Spr 2012: 13 students (9 responses) [3.8]	
Spr 2011: 54 students (30 responses) [3.9]	
Spr 2010: 31 students (21 responses) [3.5]	
Spr 2009: 17 students (12 responses) [3.8]	
EECE-7323 Numerical Optimization Methods	
Spr 2015: 35 students (13 responses) [3.8]	
Fall 2012: 16 students (9 responses) [4.1]	
Fall 2011: 25 students (18 responses) [4.1]	
Fall 2010: 25 students (20 responses) [4.4]	{New course - I introduced it to the curriculum.}
EECE-7335 Detection & Estimation Theory)	
Fall 2015: 7 students (3 responses) [?]	{Due to <5 responses, no score reported}
Spr 2014: 36 students (22 responses) [3.7]	{Revived existing course after 5-year gap}
OHSU: I taught Signals and Systems & Machine Learning to graduate students with diverse backgrounds in Fall and Spring quarters, respectively, continuously for four academic years.	

SERVICE ACTIVITIES

My external service includes editorial and committee service to journals, societies, conferences, as well as funding agencies. My internal service includes educational and administrative committee service at departmental, college, and university levels.

Editorial

Associate Editor, Brain Computer Interfaces, Jul 2013 – present
Associate Editor, IEEE Transactions on Image Processing, Nov 2013 – Mar 2016
Associate Editor, IEEE Signal Processing Letters, Feb 2011 – Jun 2014
Associate Editor, IEEE Transactions on Biomedical Engineering, Sep 2010 – Dec 2013
Associate Editor, Neural Information Processing Letters, Oct 2007 – Dec 2012
Associate Editor, Neurocomputing, Jun 2004 – Dec 2012
Associate Editor, Computational Intelligence and Neuroscience, Mar 2006 – Dec 2012
Associate Editor, IEEE Transactions on Signal Processing, Jun 2007 – Dec 2012
Associate Editor, IEEE Transactions on Neural Networks, Nov 2006 – Aug 2010
Associate Editor, IEEE Signal Processing Letters, Apr 2006 – May 2009
Guest Editor (Mandic, Tanaka) Adv Blind SigPro, Neurocomputing, vol. 71, no 10-12, Jun 2008.
Guest Editor (Miller, Larsen) MLSP 2005 Special Issue, JVLSI SigPro, vol. 48, no. 12, Aug 2007.
Guest Editor (Barros, Principe) Adv ICA & BSS, Signal Processing, vol. 87, no. 8, Aug 2007.
Guest Editor (Principe), Information Theoretic Signal Processing, Signal Processing, vol. 85, no. 5, May 2005.
Guest Editor (Principe, Oja, Xu, Cichocki), Inf Theoretic Learning, IEEE TNN, vol. 15, no. 4, Jul 2004.
Reviewer for journals/conferences (IEEE/Elsevier/Springer/MIT Press)

IEEE Technical Committee

Elected Member IEEE SPS Machine Learning for Signal Processing (MLSP) TC, Jan 2017 – present
Elected Member IEEE SPS Biomedical Imaging and Signal Processing (BISP) TC, Jan 2011 – Dec 2016
Elected Associate Member IEEE SPS BISP TC, Jan 2009 – Dec 2010
Elected Member IEEE SPS Machine Learning for Signal Processing (MLSP) TC, Jul 2003 – Dec 2009

Conference

Conference Organization

Committee Member, BCI Workshop, Asilomar, CA, USA, Jun 2016
General Chair, MLSP, Boston, MA, USA, Sep 2015
Technical Program Chair, MLSP, Santander, Spain, Sep 2012
Local Organization, EMBC, Boston, MA, Aug 2011
NA Liaison, ICPR, Istanbul, Turkey, Aug 2010
Local Organization Chair, IEEE Accessing the Future Conference (at NEU), Boston, MA, Jul 2009
Program Chair, MLSP, Playa del Carmen, Mexico, Oct 2008
NA Liaison, EUSIPCO, Lausanne, Switzerland, Aug 2008
Competition Chair, MLSP, Thessaloniki, Greece, Sep 2007
Competition Chair (with Calhoun), MLSP, Maynooth, Ireland, Sep 2006
Technical Program Chair, ICA, Charleston, SC, Mar 2006
Competition Chair, MLSP, Mystic, CT, Sep 2005

Session Organization

Special Session Chair, MLSP, Istanbul, Turkey, Sep 2013
Special Session Chair, Asilomar SSC, Multimodal Analysis of Brain Signals, Asilomar, CA Nov 2011
Workshop Organizer (with Tangermann), BCI 2010, Asilomar, CA, Jun 2010.
Special Session Chair (with Allison), Asilomar SSC, EEG based BCI, Pacific Grove, CA, Nov 2009
Special Session Chair (with Aviyente), ICASSP, EEG Signal Proc., Honolulu, HI, Apr 2007
Special Session Chair (with Principe), IJCNN, Adaptive Information Modeling, Vancouver, BC, Jul 2006
Session Chair, ICA, Speech and Signal Processing, Charleston, SC, Mar 2006
Session Chair, MLSP, Information Theoretic and Statistical Methods, Mystic, CT, Sep 2005
Session Chair, ICASSP Learning Theory and Methods, Philadelphia, PA, Mar 2005
Tutorial Organizer (with Hild, Principe), IJCNN, Information Theoretic Learning, Portland, OR, Jul 2003
Special Session Chair (with Principe), IJCNN, Nonparametric ITL, Washington, DC, Jul 2001

Program Committee Memberships {reviewing papers or handling some reviews and decisions}

2019: ICASSP, ICML, ICLR
2018: BCI, HiLiIoT, ICML, ISBI, ICASSP, MLSP, NIPS
2017: BFAL, BRAININFO, EUSIPCO, GrazBCI, ICASSP, ICLR, ISBI, NIPS
2016: BCI, MLSP, NIPS
2015: ISBI, MLSP
2014: ICASSP, ISBI
2013: ESANN, ISBI, MLSP

2012: CIP, ESANN, EUSIPCO, ICASSP, ICNSC, ICPRAM, ISBI, KDIR, MLSP, SSP
 2011: EMBC, ESANN, ICANN, ICASSP, ICCV, ICNC, ICNSC, IJCNN, ISBI, ITinCVPR, MLSP
 2010: CIP, EMBC, ESANN, ICANN, ICNSC, ICPR, IJCNN, ISBI, MLSP
 2009: ICA, IJCNN, ISBI, ISCIS, KDIR, MLSP
 2008: CIP, ESANN, EUSIPCO, ICA, ICASSP, IJCNN, MLSP
 2007: ESANN, ICA, ICNSC, IJCNN, ISNN, MLSP
 2006: ESANN, ICA, ICNSC, IJCNN, ISABEL, MLSP
 2005: ESANN, IJCNN, MLSP, SETIT
 2004: ICA, IJCNN, MLSP

Reviewer for other conferences on occasion in addition to those listed above.

Agency

NSF 2019: Panelist in NSF Sensors/AI/PersonalizedMedicine Workshop
 2018: Panelist for CHS-CAREER, ECCS, Panelist in SCH PI Mtg TTP Workshop
 2017: Panelist for CAREER (CHS, SCH), CPS, SCH, ECCS, Panelist in SCH PI Mtg Small Data Workshop
 2016: III Reviewer
 2015: IIS, BRAIN Panelist; CAREER Reviewer
 2014: 2 x IIS, CPS Panelist
 2013: IIS Panelist; SBIR Reviewer
 2012: IIS Panelist; 2 x IIS Reviewer
 2009: IIS Panelist
 2008: IIS Panelist; CCF Reviewer
 2007: CCF Reviewer
 2005: ECS Panelist

NIH 2019: Panelist for BCHI-SBIR
 2018: Panelist for BCHI, BCHI-SBIR
 2009: NIBIB Reviewer

DARPA 2011: BTO Panelist

Foundations 2017: UTSA Reviewer
 2011: ORCATECH Reviewer

International 2018: Canada NSERC
 2017: Swiss NSF Reviewer
 2016: Reviewer for NRF, South Africa
 2014: g.Tec Annual BCI Award Jury Member
 2012: Reviewer for Romanian Innovation Council
 2011: Reviewer for Skolkovo Foundation, Moscow, Russia
 2011: Reviewer for NRF, South Africa
 2010: Reviewer for National Research Foundation (NRF), South Africa
 2010: Reviewer for Org. for Scientific Research (NWO), The Netherlands

Membership

Founding Member BCI Society, Jan 2017 – present
Member IEEE Engineering in Medicine and Biology Society, Nov 2004 – present
Member IEEE Signal Processing Society (SPS), Apr 2003 – present
Member IEEE Computational Intelligence Society, Int. Syst. Applications TC, Jul 2007 – Dec 2009
Member IEEE Computational Intelligence Society, Nov 2004 – Dec 2009
Member IEEE, Jan 1996 – present (Senior Member, Oct 2007)
Member HFES Augmented Cognition Technical Group, Sep 2007 – Dec 2010
Member IEE, Jan 2006 – Dec 2006
Member INNS Special Interest Groups Committee, Jun 2005 – Dec 2010
Member INNS, Jan 2004 – Dec 2006
Member Eta Kappa Nu (Electrical Engineering Honor Society), Dec 2001 – present
Member Tau Beta Pi (Engineering Honor Society), Apr 2001 – present

Department

ECE Department Council Chair Sep 2017 – Aug 2018

The council led the preparation of a department workload policy, per senate resolution, engaging all department faculty in the discussion and following an iterative process, arriving at a policy that received favorable faculty vote. Stepped down mid-term after becoming faculty senate secretary.

ECE Faculty Search Committee Member (Chair: David Kaeli) Oct 2017 – May 2018

CV: Deniz Erdogmus

ECE Senior Faculty Search Committee Chair Nov 2016 – May 2017

Committee recruited Eduardo Sontag (who then became Distinguished University Professor)

ECE CCSP Track PhD Qual Exam Coordinator Feb 2016 – Apr 2016

ECE CHS Faculty Search Committee Chair Nov 2015 – May 2016

Committee recruited Sarah Ostadabbas, Pau Closas, Hanu Singh (who then became the Director of COE Center for Robotics), Taskin Padir (who then became the Director of Institute for Robotics); also collaborated with other search committees to recruit Ehsan Elhamifar, Hui Fang.

ECE CHS Faculty Search Committee Chair Nov 2014 – May 2015

Committee recruited Tommaso Melodia (who then became the Director of Institute for Wireless IoT)

ECE Faculty Search Committee Member (Chair: David Kaeli) Nov 2013 – May 2014

Committee recruited Raymond Fu (who started-up a company that became Northeastern's most successful spin-off to date then)

ECE Merit Review Committee Feb 2013 – Apr 2013

ECE Undergraduate Studies Committee (Chair: David Kaeli) Jan 2010 – Dec 2013

Summer/Fall 2012: Prepared and introduced Intro to Circuits & Signals w/ McGruer

ECE Communication and Digital Signal Processing (CDSP) Center, Sep 2008 – Apr 2013

Spring 2010: Helped with organization; invited Frank Guenther (BU) as a speaker

Spring 2009: Presented a talk titled *Brain Computer Interfaces* at CDSP Workshop

Affiliated member of CDSP Center for Research and Graduate Studies

ECE Website Committee Jan 2011 – Apr 2011

ECE The Fenway Building Renovation Committee Sep 2010 – Apr 2011

ECE Merit Review Committee Feb 2010 – Apr 2010

ECE-CAS Bioengineering Senior Faculty Search Committee (Chair: Dana Brooks) Sep 2009 – Aug 2010

Recruited Lee Makowski (who then became the Inaugural BIOE Department Chair)

ECE Department Council Jan 2009 – Dec 2011

ECE Biomedical Minor & Engineering in Medicine & Biology Club Nov 2008 – Dec 2010

College

BIOE Department Curriculum Committee (Chair: Lee Makowski), Feb 2014 – Dec 2014

COE Faculty Council (Chair Michael Silevitch), Sep 2013 – Feb 2014 {resigned due to lack of time}

Presented a fellowship implementation plan to the dean upon hearing of her intent to form a mechanism. COE Dean and ECE Chair Fellowships were instituted shortly after, in a format very close to my proposition.

COE Faculty Computer Committee (Chair: Lisa Koch), Sep 2012 – Aug 2013

COE Biomedical Engineering Department Committee (Chair: Lee Makowski), Oct 2011 – Dec 2012

Prepared and delivered report and recommendation to the dean. Participated in implementation.

COE Bioengineering Graduate Program Committee (Chair: Jeffrey Ruberti), Nov 2008 – Dec 2011

Prepared a proposal to instigate a graduate (PhD) program in bioengineering. I was primarily responsible for coordinating curriculum development. Program was approved and initiated in Sep 2009. Prepared an MS extension one year later. Served as BISP Track Manager, helped with admissions and curriculum revisions.

COE Faculty Advisor for Tau Beta Pi Student Organization, Apr 2009 – Dec 2011

University

Faculty Senate Secretary and Senate Agenda Committee Member Jul 2018 – Jun 2019

Faculty Senate Elected Member from COE Jul 2017 – Jun 2019

NEU Provost Office REDI Program Sep 2014 – Jan 2015

Lab Visit for RCC Students for the NEU Center for STEM Education, Dec 2012

NEU Pop-up Lab Demo for Provost's Office, Nov 2012

NEU CAREER Workshop Panel participant for the ADVANCE Program, May 2012

NEU Information Technology Policy Committee of the Faculty Senate, Oct 2012 – Aug 2013

NEU Research Highlight Video for NEU Magazine on our brain interface research, Dec 2011

Personal Health Informatics PhD Program affiliated faculty member, January 2011 – present

Focus Group on International Research Collaborations, NEU ADVANCE, Feb 2010

Human Cognitive Performance Faculty Group (Chair: Ken Blank), Oct 2009 – Apr 2010

Helped prepare earmark whitepaper for collaboration with US Army Natick

NEU Faculty Highlight Video for Colledgeclicktv.com (Michi Hirose), Oct 2009

Biotechnology Faculty Group (Chair: Ken Blank), May 2009 – Apr 2010

PUBLICATIONS AND PRESENTATIONS

Thesis & Dissertation

- [D] D. Erdogmus, *Information Theoretic Learning: Renyi's Entropy and its Applications to Adaptive System Training*, PhD Dissertation, University of Florida, Gainesville, FL, May 2002. (advisor: J.C. Principe)
- [T] D. Erdogmus, *Optimal Trajectory Tracking Guidance of an Aircraft with Final Velocity Constraint*, MS Thesis, Middle East Technical University, Ankara, Turkey, May 1999. (advisor: K. Leblebicioglu)

Books

- [B2] J.C. Principe, *Information Theoretic Learning: Renyi's Entropy and Kernel Perspectives*, Wiley, 2010. (Written by Principe with chapter coauthors. Erdogmus is coauthor of Ch. 2-6, 8, & Appendix)
- [B1] J. Rosca, D. Erdogmus, J.C. Principe, S. Haykin (eds.), *Independent Component Analysis and Blind Signal Separation: Proceedings of ICA 2006*, LNCS 3889, Springer, Berlin, Germany, 2006.

Chapters

- [BC9] Y.M. Marghi, P. Gonzalez-Navarro, F. Quivira, J. McLean, B. Girvent, M. Moghadamfalahi, M. Akcakaya, D. Erdogmus, "Signal Models for Brain Interfaces Based On Evoked Response Potentials in EEG", in *Signal Processing and Machine Learning for Brain-Machine Interfaces* (Editors Tanaka & Arvaneh; Chapter 10), IET, 2018. [DOI](#)
- [BC8] M. Moghadamfalahi, M. Akcakaya, D. Erdogmus, "Active Recursive Bayesian State Estimation for Big Biological Data", in *Signal Processing and Machine Learning for Biomedical Big Data* (Editors Sejdic & Falk; Chapter 6), T&F, 2018. [DOI](#)
- [BC7] M. Higger, M. Akcakaya, U. Orhan, D. Erdogmus, "Sensor Failure Robust Fusion", in *Multisensor Data Fusion: From Algorithms and Architectural Designs to Applications* (ed. Hassen Fourati), Taylor & Francis, Aug 2015. [DOI](#)
- [BC6] Y. Huang, D. Erdogmus, K.E. Hild II, M. Pavel, S. Mathan, "Mixed Effects Models for Single-Trial ERP Detection in Noninvasive Brain Computer Interface Design", in *Recent Progress in Biomedical Signal Processing* (eds. J. Ramirez, J.M. Gorriz, E. Lang), Bentham Scientific Publishers, Chapter 12, pp. 171-180, Nov 2011.
- [BC5] D. Erdogmus, J.C. Principe, "Information Theoretic Learning", in *Encyclopedia of Artificial Intelligence* (eds. J.R.R. Dopico, J. Dorado, A. Pazos), IGI Global, July 2008.
- [BC4] D. Erdogmus, U. Ozertem, T. Lan, "Information Theoretic Feature Selection and Projection", (Chapter 1, pp. 1-22) in *Speech, Audio, Image and Biomedical Signal Processing Using Neural Networks* (eds. B. Prasad and S.R.M. Prasanna), Springer, 2008.
- [BC3] D. Erdogmus, J. Cho, J. Lan, M. Motter, J.C. Principe, "Adaptive Local Linear Modeling and Control of Nonlinear Dynamical Systems", (Chapter 4, pp. 119-152) in *Intelligent Control Systems Using Computational Intelligence Techniques*, A. Ruano (ed.), IEE Publishing, UK, Apr 2004.
- [BC2] D. Erdogmus, J.C. Principe, R. Thogulua, "Information Theoretic Organization Principles for Autonomous Multiple-Agents", (pp. 125-143) *Recent Developments in Cooperative Control and Optimization*, S. Butenko, R. Murphey, P. Pardalos (eds.), Kluwer Academic Publishers, New York, Nov 2003.
- [BC1] J.C. Principe, Y.N. Rao, D. Erdogmus, "Error Whitening Wiener Filters: Theory and Algorithms", (Chapter 10) in *Least-Mean-Square Adaptive Filters*, S. Haykin, B. Widrow (eds.), Wiley, New York, Sep 2003.

Journals

- [J130] P. Gonzalez-Navarro, Y.M. Marghi, B. Azari, M. Akcakaya, D. Erdogmus, "An Event-driven AR-process Model with Rapid Trial Sequences for EEG-based BCIs", *IEEE TNSRE*, (accepted Mar) 2019.
- [J129] Y. Xiang, M. Akcakaya, S. Sen, D. Erdogmus, A. Nehorai, "Target Tracking Via Recursive Bayesian State Estimation in Cognitive Radar Networks", *Signal Processing*, vol. 155, p. 157-169, Feb 2019. [DOI](#)
- [J128] S. Salehi, S. Khan, D. Erdogmus, A. Gholipour, "Real-Time Deep Pose Estimation With Geodesic Loss for Image-to-Template Rigid Registration", *IEEE TMI*, vol. 38, no. 2, p. 470-481, Feb 2019 (epub 2018). [DOI](#)
- [J127] S.R. Hashemi, S. Salehi, D. Erdogmus, S.P. Prabhu, S.K. Warfield, A. Gholipour, "Asymmetric Loss Functions and Deep Densely-Connected Networks for Highly-Imbalanced Medical Image Segmentation: Application to Multiple Sclerosis Lesion Detection," *IEEE Access*, vol. 7, pp. 1721-1735, Jan 2019 (epub 2018). [DOI](#)
- [J126] B. Kadioglu, I. Yildiz, P. Closas, M. Fried-Oken, D. Erdogmus, "Robust Fusion of c-VEP and Gaze", *IEEE Sensor Letters* (Special Issue on Multimodal Data Fusion), Jan 2019 (epub 2018). [DOI](#)
- [J125] A. Ahani, M. Moghadamfalahi, D. Erdogmus, "Language-Model Assisted and Icon-based Communication Through a Brain Computer Interface With Different Presentation Paradigms", *IEEE TNSRE*, Jul 2018. [DOI](#)
- [J124] J.M. Brown, J.P. Campbell, A. Beers, K. Chang, S. Ostmo, R.V. Paul Chan, J. Dy, D. Erdogmus, S. Ioannidis, J. Kalpathy-Cramer, M. Chiang, "Automated Diagnosis of Plus Disease in Retinopathy of Prematurity Using Deep Convolutional Neural Networks", *JAMA Ophthalmology*, vol. 136, no. 7, p. 803-810, 2018. [DOI](#)
- [J123] B. Kadioglu, I. Yildiz, P. Closas, D. Erdogmus, "M-Estimation Based Subspace Learning for Brain Computer Interfaces", *IEEE JSTSP*, vol. 12, no. 6, p. 1276-1285, 2018. [DOI](#)

- [J122] A. Kocanaogullari, M. Akcakaya, D. Erdogmus, “On Analysis of Active Querying for Recursive State Estimation”, IEEE SPL, vol. 25, no. 6, p. 743–747, 2018. [DOI](#)
- [J121] A. Kocanaogullari, Y.M. Marghi, M. Akcakaya, D. Erdogmus, “Optimal Query Selection Using Multi-Armed Bandits”, IEEE SPL, vol. 25, no. 12, p. 1870–1874, 2018. [DOI](#)
- [J120] H. Nezamfar, S. Salehi, M. Higger, D. Erdogmus, “Code-VEP vs Eye Tracking: A Comparison Study”, Brain Sciences, vol. 8, no. 7, 2018. [DOI](#)
- [J119] B. Peters, M. Higger, F. Quivira, S. Bedrick, S. Dudy, B. Eddy, M. Kinsella, T. Memmott, J. Wiedrick, M. Fried-Oken, D. Erdogmus, B. Oken. “Effects of Simulated Visual Acuity and Ocular Motility Impairments on SSVEP BCI Performance: An Experiment With Shuffle Speller”, Brain Computer Interfaces, vol. 5, no. 2-3, p. 58-72, 2018. [DOI](#)
- [J118] J. Sourati, M. Akcakaya, D. Erdogmus, T.K. Leen, J. Dy, “A Probabilistic Active Learning Algorithm Based on Fisher Information Ratio”, IEEE TPAMI, vol. 40, no. 8, p. 2023-2029, 2018. [DOI](#)
- [J117] S. Salehi, D. Erdogmus, A. Gholipour, “Auto-Context Convolutional Neural Network (Auto-Net) for Brain Extraction in Magnetic Resonance Imaging”, IEEE TMI, vol. 36, no. 11, Nov 2017. [DOI](#)
- [J116] M. Moghadamfalahi, M. Akcakaya, H. Nezamfar, J. Sourati, D. Erdogmus, “An Active RBSE Framework to Generate Optimal Stimulus Sequences in a BCI for Spelling”, IEEE Transactions on Signal Processing, vol. 65, no. 20, p 5381-5391, Oct 2017. [DOI](#)
- [J115] E. Onuk, J. Badger, Y.J. Wang, J. Bardhan, Y. Chishti, M. Akcakaya, D.H. Brooks, D. Erdogmus, D.L. Minh, L. Makowski, “Effects of Catalytic Action and Ligand Binding on Conformational Ensembles of Adenylate Kinase”, Biochemistry, Aug. 2017. [DOI](#)
- [J114] M. Haghighi, M. Moghadamfalahi, M. Akcakaya, D. Erdogmus, “EEG-assisted Modulation of Sound Sources in the Auditory Scene”, Biomedical SigPro and Control, vol. 39, p. 263-270, (online) Aug 2017. [DOI](#)
- [J113] M. Haghighi, M. Moghadamfalahi, M. Akcakaya, B. Shinn-Cunningham, D. Erdogmus, “A Graphical Model for Online Auditory Scene Modulation Using EEG Evidence for Attention”, IEEE TNSRE, vol. 25, no. 11, Jun 2017. [DOI](#)
- [J112] M. Shaker, D. Erdogmus, J. Dy, S. Bouix, “Subject-specific Abnormal Region Detection in Traumatic Brain Injury Using Sparse Model Selection on High-dimensional Diffusion Data”, Medical Image Analysis, vol. 37, p. 56-65, Apr 2017. [DOI](#)
- [J111] J. Sourati, M. Akcakaya, T.K. Leen, D.Erdogmus, J.G. Dy, “Asymptotic Analysis of Objectives Based on Fisher Information in Active Learning”, JMLR, vol. 18, p. 1-41, Mar 2017. [DOI](#)
- [J110] P. Gonzalez-Navarro, M. Moghadamfalahi, M. Akcakaya, D. Erdogmus, “Spatio-temporal EEG Models for Brain Interfaces”, Signal Processing, vol. 31, pp. 333-343, Feb 2017. [DOI](#)
- [J109] U. Orhan, H. Nezamfar, M. Akcakaya, D. Erdogmus, M. Higger, M. Moghadamfalahi, A. Fowler, B. Roark, B. Oken, M. Fried-Oken, “Probabilistic Simulation Framework for EEG-based BCI Design”, BCI, vol. 3, no. 4, p. 171-185, Dec 2016. [DOI](#)
- [J108] J.P. Campbell, J. Kalpathy-Cramer, D. Erdogmus, P. Tian, D. Kedarisetti, C. Moleta, J.D. Reynolds, K. Hutcheson, M.J. Shapiro, M.X. Repka, P. Ferrone, K. Dresner, J. Horowitz, K. Sonmez, R. Swan, S. Ostmo, K.E. Jonas, R.V.P. Chan, M. F. Chiang, “Plus Disease in ROP: A Continuous Spectrum of Vascular Abnormality as a Basis of Diagnostic Variability”, vol. 123, no. 11, p. 2338-2344, Nov 2016. [DOI](#)
- [J107] J. Kalpathy-Cramer, J.P. Campbell, D. Erdogmus, P. Tian, D. Kedarisetti, C. Moleta, J.D. Reynolds, K. Shapiro, M.X. Repka, P. Ferrone, K. Dresner, J. Horowitz, K. Sonmez, R. Swan, S. Ostmo, K.E. Jonas, R.V. Chan, M.F. Chiang, “Plus Disease in Retinopathy of Prematurity: Improving Diagnosis by Ranking Disease Severity and Using Quantitative Image Analysis”, Ophthalmology, vol. 11, p. 2345-2351, Nov 2016. [DOI](#)
- [J106] M. Higger, F. Quivira, M. Akcakaya, M. Moghadamfalahi, H. Nezamfar, M. Cetin, D. Erdogmus, “Recursive Bayesian Coding for BCIs”, IEEE Transactions on Neural Systems and Rehabilitation Engineering, (online) Jul 2016. [DOI](#)
- [J105] J.P. Campbell, E. Ataer-Cansizoglu, V. Bolon-Canedo, A. Bozkurt, D. Erdogmus, J. Kalpathy-Cramer, S.N. Patel, J.D. Reynolds, J. Horowitz, K. Hutcheson, M. Shapiro, M.X. Repka, P.Ferrone, K. Dresner, M.A. Martinez-Castellanos, S. Ostmo, K. Jonas, R.N.P. Chan, M.F. Chiang, “Expert Diagnosis of Plus Disease in Retinopathy of Prematurity from Computer-based Image Analysis”, JAMA Ophthalmology, vol. 134, no. 6, p. 651-657, Jun 2016. [DOI](#)
- [J104] S. Guler, M. Dannhauer, B. Erem, R. Macleod, D. Tucker, S. Turovets, P. Luu, D. Erdogmus, D.H. Brooks, “Optimization of Focality and Direction in Dense Electrode Array Transcranial Direct Current Stimulation (tDCS)”, Journal of Neural Engineering, vol. 13, no. 3, May 2016. [DOI](#)
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- [J102] H. Nezamfar, S. Salehi, M. Moghadamfalahi, D. Erdogmus, “FlashType™: A Context-aware c-VEP-based BCI Typing Interface using EEG Signals”, IEEE Journal of Selected Topics in Signal Processing, (online) Apr 2016. [DOI](#)
- [J101] J. Sourati, M. Akcakaya, J.G. Dy, T.K. Leen, D. Erdogmus, “Classification Active Learning Based on Mutual Information”, Entropy, vol. 18, no. 2, Jan 2016. [DOI](#)

- [J100] E. Ataer-Cansizoglu, V. Bolon-Canedo, J.P. Campell, A. Bozkurt, D. Erdogmus, J. Kalpathy-Cramer, S. Patel, K. Jonas, R.V.P. Chan, S. Ostmo, M.F. Chiang, “Computer-based Image Analysis for Plus Disease Diagnosis in Retinopathy of Prematurity: Performance of the i-ROP System and Image Features Associated with Expert Diagnosis”, *Translational Vision Science and Technology*, vol. 4, no. 6, Nov 2015. [DOI](#)
- [J99] V. Bolon-Canedo, E. Ataer-Cansizoglu, D. Erdogmus, J. Kalpathy-Cramer, O. Fontenla-Romero, A. Alonso-Betanzos, M.F. Chiang, “Dealing with Inter-expert Variability in Retinopathy of Prematurity: A Machine Learning Approach”, *Computer Methods and Programs in Biomedicine*, vol. 122, no. 1, p. 1-15, Oct 2015. [DOI](#)
- [J98] A.E. Onuk, M. Akcakaya, J. Bardhan, D. Erdogmus, D.H. Brooks, L. Makowski, “Constrained Maximum Likelihood Estimation of Relative Abundances of Protein Conformation in a Heterogeneous Mixture from Small Angle X-ray Scattering Intensity Measurements”, *IEEE Transactions on Signal Processing*, vol. 63, no. 20, pp. 5383-5394, Oct.15, 2015. [DOI](#)
- [J97] M. Moghadamfalahi, U. Orhan, M. Akcakaya, H. Nezamfar, M. Fried-Oken, D. Erdogmus, “Language-mode-assisted Brain Computer Interface for Typing: A Comparison of Matrix and Rapid Serial Visual Presentation”, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 23, no. 5, Sep 2015. [DOI](#)
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- [J94] A. Ahani, K. Wiegand, U. Orhan, M. Akcakaya, M. Moghadamfalahi, H. Nezamfar, R. Patel, D. Erdogmus, “RSVP IconMessenger: Icon-based Brain-Interfaced Alternative and Augmentative Communication”, *Brain Computer Interfaces*, vol. 1, no. 3-4, p. 192-203, Dec 2014. [DOI](#)
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RESNA 2018 BCI Workshop, *Gaze, Colors, and VEP*, Arlington, VA, Jun 2018.

Philips Research, *Noninvasive Brain Computer Interfaces*, Cambridge, MA, May 2018.

BCI 2018 Vision & BCI Workshop, *Gaze, Colors, and VEP*, Asilomar, CA, May 2018.

IISA 2016 Invited Speaker, *Local Characterization of Critical Surfaces*, Oregon State University, Corvallis, OR, Aug 2016.

UConn BME, *VEP-based Brain Interface Design and Applications*, Storrs, CT, Sep 2016.

SPR 2016 Invited Speaker, *VEP-based Brain Interface Design and Applications*, Minneapolis, MN, Sep 2016.

UPitt ECE, *VEP-based Brain Interface Design and Applications*, Pittsburgh, PA, Mar 2016.

Boston Area Affective Scientists Meeting, *EEG-based Brain Interfaces & Potential Relevance to BAAS*, Boston, MA, Feb 2016.

UMass-Boston ENG, *EEG-BCI Design: Physiology-Context Evidence Fusion & Active Brain Querying*, Boston, MA, Dec 2015.

BIYOMUT 2015 Plenary, *BCI Design: Physiology-Context Evidence Fusion & Active Brain Querying*, Istanbul, Turkey, Nov 2015.

MERL, *EEG-BCI Design: Physiology-Context Evidence Fusion & Active Brain Querying*, Cambridge, MA, Oct 2015.

Universidad de A Coruna ECE, *Designing Noninvasive BCIs Using Visual Evoked Potentials*, Spain, Jul 2013.

EMBC Workshop on BCI, *Designing Brain Computer Interfaces Using Visually Evoked Potentials*, San Diego, CA, Aug 2012.

STT 2012 Invited Speaker, *Nonredundant Tensor Decomposition*, Tianjin, China, May 2012. (Planned, but could not attend)

University of Granada ECE, *Critical Surfaces of Functions and Applications*, Spain, Dec 2011.

University of Granada ECE, *Designing BCIs Using Visual Evoked Potentials*, Spain, Dec 2011.

UC Merced EECS, *Designing BCIs Using Visual Evoked Potentials*, Merced, CA, Nov 2011.

EMBC Workshop on BCI, *Designing BCIs Using Visually Evoked Potentials*, Aug 2011

University of Florida CNEL, *Brain Computer Interfaces in Context*, Gainesville, FL, Jun 2011

Northeastern University CENSSIS REU, *Brain Computer Interfaces*, Jun 2011

DARPA, *Promises and Challenges of Visual Cortex Kinetics for Hands-free Interaction with Cyberphysical Agents*, Mar 2011

Worcester Polytechnic Institute ECE, *Brain Computer Interfaces – An Emerging Interaction Modality*, Jan 2011

NAE Frontiers in Eng. Education Workshop, *BCIs: A Timely Opportunity for Project-based Learning*, Irvine, CA, Dec 2010

Oregon Health and Science University BMCS, *Nonredundant Tensor Decomposition*, Beaverton, OR, Nov 2010

University of Maryland Radiation Oncology, *Cognitive Signal Processing and Machine Learning*, Baltimore, MD, May 2010

University of Maryland Baltimore County ECE, *Cognitive Signal Processing and Machine Learning*, Baltimore, MD, May 2010

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Boston University CNS Speech Laboratory, *Cognitive Signal Processing and Machine Learning*, Boston, MA, Aug 2009

NLMFF Boston Club, *ERP-based Communication Device for Nonverbal Children on the Autism Spectrum*, Boston, MA, May 2009.

Draper Labs, *Cognitive Signal Processing and Machine Learning*, Boston, MA, Apr 2009

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