ATİLA YILMAZ

PERSONAL BACKGROUND
Born in Edirne, Turkey, in 1965. Turkish citizen. Married with one children.

ACADEMIC BACKGROUND

Since 2017: Hacettepe University, Beytepe, Ankara, Turkey. **Professor**.

2009-2017: Hacettepe University, Beytepe, Ankara, Turkey. **Associate Professor**.

2013 (March- July) Visit to Biomedical Engineering Dept. of University of Wisconsin, Madison. Study with Prof. J.G. Webster on the book chapter

1997- 2009: Hacettepe University, Beytepe, Ankara, Turkey. **Assistant Professor**.

1993- 1996: University of Sussex, Biomedical Engineering Division, England, **Ph.D**. in Biomedical Engineering. **PhD Thesis:** Non-Linear Processing for Cardiac Signals in the Framework of Neural Networks, supervised by M.J. English

1990- 1993: University of Manchester Institude of Science and Technology (UMIST), Control Systems Centre, England, **MSc Thesis:** Control Problems of Discrete Event Dynamic Systems in Temporal Logic Framework, supervised by P.A. Cook

1986- 1996: Hacettepe University, Research Assistant in Electrical and Electronics Engineering Department

ADMINISTRATIVE EXPERIENCE

- **Presedent,** Turkish Student Society, Manchester, UMIST, England, 1991-1993
- **Vice Chair** Hacettepe University, Electrical and Electronics Eng. Dept., 2004-2007
- **Representative for Assistant Professors** Hacettepe University, Engineering Faculty Board, 1999-2006
- **Vice Director,** Hacettepe University, Institute Of Informatics, 2004-2009
- **Vice Chair** Hacettepe University, Electrical and Electronics Eng. Dept., 2014-2017
- **Director of IT Office**, Hacettepe Üniversitesi, 2017-2021
- **Member of TTM** Executive Board, Hacettepe University, 2021-

Member of Professional Organisations: IEEE (1998-)), **EMO**(1987-)

SELECTED AWARDS & HONORS

- **Honorary Place in Graduation (2nd),** Edirne High School, 1979-1982
- **Scholar from The council of Higher Education of Turkey** for Postgraduate Studies in England
- **The Best Student Paper,** May 2009.
- **Has runner up award with Portable Sleep Apnea Device,** The 5th Competition" in Health Industry Employers Association of Turkey in May 2011
- **4. Dr. Akin Cakmakci Award** for the Best Thesis in University and Industry Collaboration with the PhD thesis called "Design and Comparison of Electronic Above Knee Prostheses Employing Pneumatic and MR Cylinders by Motion Measurement Systems" by K. E. Akdoğan under his supervision 2012.

- **Patent award**, the third place with "A Sleep Apnea Device" in ISIF 2021 by Turkish Patent Institution

PATENT:

2020/03230 Patent "A Diognasis Device for Sleep Apnea", Turkish Patent and Trademark Office, applied also to European Patent Office

COURSES TAUGHT

ELE 107- Computers and Programming I
ELE 108- Computers and Programming II
ELE 203- Circuit Theory I
ELE 220- Circuit Theory II
ELE 451- Introduction to Biomedical Engineering
ELE 452- Introduction to Medical Imaging
ELE 785- Neural Networks
ELE 789- Biomedical Signal Processing

PROJECTS

Research Fund (000260203) Hacettepe Universitesi (2000-2004): Project Leader, "High Resolution-High Gain Recording of Ventricular Late Potentials (VLPs) and Search for its Medical Implications",

TUBITAK, TUBITAK (TIDEB 105E171)
Researcher, Computerized Tomographic Imaging of Electron Density of Ionosphere by GPS Measurements, F.ARIKAN, A.Z.ALKAR, A.YILMAZ, E.AKTAŞ, U.SEZEN, Orhan Arıkan (Bilkent Üniversitesi), Ali Kılıçoğlu (HGK) (2006-2008)

SANTEZ (00035.STZ.2007-1)
Project Leader, "Microprecessor Coontrolled Artificial Knee Prosthesis", (2007-2011)

SANTEZ (00035.STZ.2008-1)
Project Leader, "Design of Portable Recording Device for Sleep Apnea Detection", (2008-2011)

TUBITAK, TUBITAK 1001 (112E316), Research Project
Project Leader, Development and Implementation of Real Time Phase and Velocity Estimation for Pneumatic and Magnetorheological (MR) Damper Based Semi-active Knee Prosthesis, (2013-2016)

TUBITAK, KOBİ Research Startup Support Program,
Advisor, Auscultation with Electronic Stethoscope and Developing Diognostic Support System for Hearth Disease (ESDEG-G), (2015-2017)

HU Scientific Research Projects Unit,
Project Leader, Analysis Of Nonlinear Control Methods Developed for Under-Actuated Hand Prosthesis on the Real Time Platforms, (2017-2019)

HU-ASELSAN Research Project,
Project Leader, Circuit Board Inspection by Portable/ Stationary Equipment, (2019-2022)

HU Scientific Research Projects Unit
Project Leader, Smart Decision Support System Using Digital Stethoscope Recordings for Heart Sound Classification, (2022,-)

HU Scientific Research Projects Unit

Project Leader, Telerehabilitation Supported by Image Based Motion Analysis System Through Web and ARMxoHU Exoskeleton Design for Home Therapy: DMD and MS Applications, (2022,-)

Some Scientific Organizations Participated

- **Member of Scientific Committee ,** SİU2021, The 29th IEEE Conference on Signal Processing and Communications Applications, 9-11 June 2021
- **Organizer,** Workshop, TTM, Hacettepe University - ASELSAN Akademic Workshop, 3-4 June 2021
- **Organizer,** Joint Workshop, Measure and Evaluation Systems in Physiotherapy ve Rehabilitation Systems and Technology, 17 June 2016
- **Member of Scientific Committee,** Biomed2004, 11th International Biomedical Science and Technology Days: Symposium on Bioinstrumentation and Imaging, Hacettepe Üniversitesi, 6-7 Sep. 2004.
- **Member of Organizing Committee,** 19. IEEE Conference on Signal Processing and Communications Applications, Antedon Hotel, Kemer, Antalya, April 2011
- **Special Session,** IEEE 15. IEEE Conference on Signal Processing and Communications Applications "Remote Ionosphere Detection", Feza Arıkan, Atila Yılmaz, Anadolu University, 11-13 June 2007.
- **Invited Speaker,** Biomedical Workshop, "New challenges in Biomedical Engineering", 14-16 July 2003, Işık University, İstanbul,TURKEY,
- **Erasmus Teaching Mobility,** 2019, Nova de Lisboa, Portugal

PhD Thesis Supervised (4)

- Ayad Mousa, "Development of a Unified Method For The Detection And Analysis of Late Potentials as Non-invasive Predictors to Ventricular Tachicardia in ECG", June 2005 (In English)
- Kurtulus Erinc Akdogan, "Design and Comaparison of Electronic Above Knee Prostheses Employing Pneumatic and MR Cylinders by Motion Measurement Systems", Jan 2011 (in Turkish)
- Zahit Evren Kaya, Design of Under-Actuated Hand Prosthesis and Artificial Neural Network-Based Control, Sep 2019 (In Turkish)
- Tuna Orhanlı, DESIGN AND ANALYSIS OF A KNEE PROSTHESIS WITH (MR) MAGNETORHEOLOGICAL DAMPER, July 2020 (In Turkish)

MSc Thesis Supervised (23)

- Baykal, İ.C., "Monitoring Cardiac Signals and Detection of Ventricular Late Potentials", 2000,
- Kılıç, İsmail "Alarm Handling in Communication Networks", 2002,
- Durmuş, Ünal "USB Based Portable ECG Recording with Risk Stratification Software", 2003,
- Akdoğan,K.E. "Analysis of Analytic Solutions for Electric Impedance Tomography", 2004,
- Deniz, Tacım, "Design and Implementation of a Multipurpose Digital Ambulatory Recorder Using Flash Multimedia Memory: Sleep Apnea Case Study", Jan 2005,
- Karadeniz, Özgür, "Design of Holter Recorder With Flash Multimedia Card For Sleep Apnea Analysis", Jan 2007,
- Gürün, Melike, "Regional Ionosphere Mapping with TEC Data by Using Artificial Neural Networks", May 2007.
- Duman, Şeyma, "Simulations on Knee Joint State Equation and NeuroFuzzy Control with SIMULINK", Oct 2008.

- Ö. Tolga Altınöz, " Microcontroller Based Hardware Design for Control and Test for Artificial Knee Joint", May 2010.
- Tolga Dundar, " Design of Third Level Pre-diagnosis Holter Recorder and Neural Network Based Detection for Obstructive Sleep Apnea", Jun 2010.
- Emre Tileylioglu, "Prediction and Realization of Phase of Walk With Semi-Active Knee Prosthesis", Feb 2012.
- Mehmet Ali Mutlu "Data Quality Assesment of III. Level Sleep Apnea Recorder Device and Analysis of Accelerometer Recordings", Sep 2012.
- İlker Günay "Comparison of Empirical Mode Decomposition and Wavelet Transform on Analysis and Recognition of Ventricular Late Potentials", Mar 2013.
- Amirmahdi Sadeghimorad "Finite State Control of Semi Active Knee Joint With Magnetorheological (MR) Damper", Aug 2013.
- Shalaleh Jalali Chaychi, "Sleep Apnea Detection by Dynamic Neural Networks for Third Level Portable Equipment Records", Sep 2014.
- Tuna Orhanlı, "Finite State Control of Semiactive Knee Joint with Pneumatic Damper And A Test Platform Design For Testing Knee Prosthesis", Jan 2014.
- Ayşe Taşdöğen, "Detection of Contractions And Estimation Of Preterm Birth By Using Uterus Electromyogram Signals", Jan 2017
- Gülşen Çelebi, "Classification And Segmentation Of Heart Sound (Phonocardiogram) Signals Obtained By Digital Stethoscope, June 2017
- Çağrı Akalın, "Design of Semı Actıve Knee Joınt Orthosıs Wıth Magnetorhelogıc (Mr) Damper", Jan, 2018
- Onur Peker, "Time Delay Neural Network Based Apnea Detection and Comparative Analysis", March 2018
- Nadir Akik, "Electrogastrography And Functional Electrical Stimulation System (FES) Design For Gastroparesis", March 2018
- Göksel Sözeri, "Modelıng The Swıng Phase Of Above Knee Prostheses Wıth Magnetorheologıc (MR) Damper", Jan 2020.
- Hatice Manisalı, "Analysis of Conductivity Distribution Reconstruction Problem of Elliptic Models with Artificial Neural Networks At Electrical Impedance Tomography", July 2020

SELECTED PUBLICATIONS (84 Citations)

Articles and Book Chapters

- F. Ülger, S. E. Yüksel, A. Yılmaz, D. Gökcen, "Fine-grained Classification of Solder Joints with alpha-skew Jensen-Shannon Divergence", IEEE Transactions on Components, Packaging and Manufacturing Technology, Jan. 2023
- F. Ulger, S. E. Yüksel, A. Yılmaz, "Anomaly Detection for Solder Joints Using β-VAE", IEEE Transactions on Components, Packaging and Manufacturing Technology, Oct. 2021
- **Book Chapter (In Turkish)** A. Yılmaz, O.Peker, Taşınabilir Apne Tespit Cihazı: Donanım ve Yazılım, Türkiye Klinikleri- Biyomedikal - Uyku Sinyallerinin İşlenmesi, Sep. 2020
- Z. E. Kaya, A. Yılmaz, "Modeling and Simulation of an Anthropomorphic Hand Prosthesis with an Object Interaction", Elsevier, Computer Methods and Programs in Biomedicine, January 2020
- **Book Chapter (In Turkish)** A. Yılmaz, T. Orhanlı, "Biyokinematik: Kuram, Ölçüm ve Çözümleme Çalışmaları", Biyomedikal Mühendisliği ve Uygulamaları, EMO, April 2019
- **Book Chapter (In Turkish)** K. E. Akdoğan, A. Yılmaz, "Elektrik Empedans Tomografi", Biyomedikal Mühendisliği ve Uygulamaları, EMO, April 2019

- **Book Chapter (In Turkish)** A. Yılmaz, K. E. Akdoğan, "Elektronik Diz Üstü Protezler", Biyomedikal Mühendisliği ve Uygulamaları, EMO, April 2019
- Yilmaz, A., "Comparative study for identification of multiple alarms in telecommunication networks", Turkısh Journal of Electrical Engineering & Computer Sciences, 2017
- K. E. Akdoğan, A. Yılmaz (in Turkish), Elektronik Diz Protezi İçin Yürüyüş Hareket Denklemlerinin Çözümlemesi Ve Oransal Türevsel Denetim Uygulaması, Journal of the Faculty of Engineering and Architecture of Gazi University, 2016
- **Book Chapter** Yilmaz A., Orhanli T., Biokinematics for Mobility: Theory, Sensors, and Wireless Measurements, Telehealth and Mobile Health, Kitap Bölümü, Dec. 2015
- Yilmaz A., Orhanli T., "Gait Motion Simulator for Kinematic Tests of Above Knee Prosthesis", IET Science, Measurement and Technology, The Institution of Engineering and Technology, Sayı:0042, May 2015
- A. Yılmaz,K.E. Akdoğan, Melike Gürün, "Regional TEC Mapping Using Neural Networks" Radio Science, 4, 1-16, May 2009
- Yılmaz, A., Akdoğan, K.E., Saka, B., "Application of Conformal Transformation to Elliptic Geometry for Electric Impedance Tomography", Medical Engineering & Physics, 30(2), 144-153, January 2008
- Mousa, A. ve Yılmaz, A., "Comparative Analysis on Wavelet Based Detection of Finite Duration Low-amplitude Signals Related to Ventricular Late Potentials", Physiological Measurement, 25, 1-15, Nov. 2004
- Saka, B. ve Yılmaz, A. "Elliptic Cylinder Geometry for Distinguishability Analysis in Electric Impedance Tomography', IEEE Trans. on Biomedical Engineering, 126-132, Jan. 2004
- Yılmaz, A. ve Saka, B., "Non-Linear Modelling of Parabolic Reflector: Neural Network Approach", Electromagnetics, 19(2), 187-200, 1999.

Conference Papers

- M. Eryılmaz, M. Çil, S. Aktürk, M. Tileği, H. Tırak, A. Yılmaz, S. E. Yüksel, D. Gökcen, "Defect Classification from Electronic Card Images by Deep Learning", 28th Signal Processing and Communications Applications Conference (SIU), May 2022
- Onur Peker, Atila Yılmaz, "Neural Network Based Real Time Evaluation for Portable Apnea Device with Three Channels", THE 29th IEEE Conference On Signal Processing And Communications Applications, 9-11 June 2021
- Hatice Manisalı, Atila Yılmaz, "Reconstruction of Multiple Inhomogeneities for Circular Model in Electric Impedance Tomography", The 29th IEEE Conference On Signal Processing And Communications Applications, 9-11 June 2021,
- İbrahim Özkan , Atila Yılmaz "Classification of Systolic Murmurs by Using Improved Mel-Wavelet Segmentation", The 29th IEEE Conference On Signal Processing And Communications Applications, 9-11 June 2021
- İ. Özkan, A. Yılmaz, G. Çelebi, "Improved Segmentation Algorithm with Dynamic Threshold Adjustment for Phonocardiography Recordings", 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), July 2019
- T. Orhanlı, A. Yılmaz, "Analysis of Gait Dynamics with the Double Pendulum Model", IEEE 27. Conference on Signal Processing and Communications Applications (IEEE SIU 2019), April 2019 (Cited 2)
- İ. Özkan, A. Yılmaz, G. Çelebi, "Hybrid Segmentation Algorithm using Mel-Frequency Cepstrum and Wavelet Transform for Phonocardiography Records", IEEE 27. Conference on Signal Processing and Communications Applications (IEEE SIU 2019), April 2019.
- G. Sözeri, A. Yılmaz, İ. Şahin, "Analysis and Comparison of Current Dependent Models of MR (Magnetoreological) Dampers Used in Knee Prosthesis", IEEE 27. Conference on Signal Processing and Communications Applications (IEEE SIU 2019), April 2019.

- A. Yılmaz, M. A. Mutlu, M. Günay, A. U. Demir, “Analysis of Portable Apnea Devices: Comparison with Polysomnographic (PSG) Records”, IEEE 27. Conference on Signal Processing and Communications Applications (IEEE SIU 2019), April 2019.
- Peker O., Yilmaz A., Demir A.U., "Design of Apnea Detection Interface Including Time Delay Neural Networks for Portable Recording Devices with Three Channels”, 26th IEEE Signal Processing and Telecommunication Applications Conference, IEEE, May 2018
- Çelebi G., Sözeri G., Yilmaz A., Katircioğlu D., Okutucu S., Sayin B.Y., Aksoy H., "Mel-frequency cepstral based heart sound signal segmentation for decision support system", IEEE 25. th Signal Processing and Communications Applications Conference (SIU), IEEE, May2017
- Orhanli T., Saraçoğlu M.S., D.Ş., Yilmaz A., "Wireless and Embedded Controller Card Design for Above-knee Prosthesis with Pneumatic Damper", International Society for Prosthetics and Orthotics- ISPO World Congress 2017, SAGE Journals, Feb. 2017
- Tileylioğlu E., Yilmaz A., "Application of Neural Based Estimation Algorithm for Gait Phases of Above Knee Prosthesis", 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Aug. 2015
- Atila Yılmaz, Amir Sadeghimorad, Tuna Orhanlı, İsmail Şahin, "Embedded Phase Estimation in Finite State Control for Above-Knee Prosthesis using Magnetorheological (MR) Damper", 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS), August 2015.
- Yilmaz A., Orhanli T., "Improving Test Platform for Kinematic Analysis of Above Knee Prostheses", International Society for Prosthetics and Orthotics- ISPO World Congress 2015, International Society for Prosthetics and Orthotics, June 2015
- Orhanli T., Yilmaz A., "Implementing Phase and Velocity Estimation for Finite state Based Control of Pneumatic Above Knee Prosthesis", International Society for Prosthetics and Orthotics- ISPO World Congress 2015, SAGE Journals, Cilt:39, June 2015
- Orhanli T., Yilmaz A., "Application and comparison of finite state control of above-knee prosthesis with pneumatic cylinder at different phases", 23th, IEEE Signal Processing and Communications Applications Conference (SIU), 2015, May 2015
- A. Yılmaz, T. Dundar “Home Recording for Pre-Phase Sleep Apnea Diagnosis by Holter Recorder Using MMC Memory”, VECIMS- 2010 IEEE International Conference on Virtual Environments, Human-Computer Interfaces and Measurement Systems, Taranto, Italy, Sep. 2010.
- K. E. Akdoğan, Atila Yılmaz, “Analysis of Direct Motion Measurement System for Design of Above Knee Prosthesis”, VECIMS- 2010 IEEE International Conference on Virtual Environments, Human-Computer Interfaces and Measurement Systems, Taranto, Italy, Sep. 2010.
- K.E.AKDOĞAN, A.YILMAZ, Şeyma Duman, " Simulations of Knee Angle Control in Dynamical Gait Model for Above Knee Prosthesis”, IEEE 17. th Signal Processing and Communications Applications Conference (SIU), April 2009)
- Sayın, I., Yılmaz, A., Arıkan, F., Gürün, M., Arıkan, O., “Comparison of Kriging, Random Field Priors and Neural Network on Synthetic TEC Data”, Turkish National Geodetic Commission, Türkiye Ulusal Jeodezi Komisyonu (TUJK) Scientific Meeting 2007 on Monitoring and Modeling of the Ionosphere and Troposphere, ODTÜ, Ankara, 14-16 November 2007.
- Gürün M., Akdoğan K.E., Yılmaz A. “Regional Ionosphere Mapping By Using Neural Networks”, RAST 2007, 3rd International Conference on Recent Advances in Space Technologies, 44-49, June 2007.
- Deniz, T., Yılmaz, A., “Digital Ambulatory ECG Device Using Flash Memory Storage Unit”, Biomed2004-11th International Biomedical Science and Technology Days, 21, Ankara, September 6-10, 2004.

- Deniz, T., Yılmaz, A., “Design and Implementation of a Digital Ambulatory ECG Recorder Based on Flash Multimedia Card Memory” MWCAS2003- IEEE Midwest Symposium on Circuit and Systems, Cairo, Egypt, Dec. 2003.
- Akdoğan, K.E., Yılmaz, A., Saka, B., “Analysis of Forward Problem for Elliptic Geometry in EIT by Using Analytical and Finite Element Methods” MWCAS2003, IEEE Midwest Symposium on Circuit and Systems, Cairo, Egypt, Dec. 2003.
- Yılmaz, A., Kılınç, İ., “Multiple Fault Identification by Using Neural Model for Telecommunication Networks”, IASTED Communication Systems and Networks (CSN 2002), Malaga, Spain, Sep. 9-12, 2002.
- Baykal I.C., Yilmaz, A., Kwan H.K., “Detection of Late Potentials in Electrocardiogram Signals in both Time and Frequency Domains Using Artificial Neural Networks”, IEEE-MWSCAS Circuits and Systems Symposium, Ohio, USA, 576-580, 14-17 August 2001.
- Ayad, M., Yılmaz, A.,”A Method Based on Wavelet Analysis for the Detection of Ventricular Late Potential (VLP) in ECG Signals”, IEEE-MWSCAS Circuits and Systems Symposium, 497-501, Ohio, USA, 14-17 August 2001.
- Ayad, M., Yılmaz, A.,”Neural Network Detection of Ventricular Late Potentials in ECG Signals Using Wavelet Transform”, 23 rd Annual Int. Conf. of the IEEE- EMB, Istanbul Turkey, Nov. 2001. **(Cited 5)**