

December 1<sup>st</sup>, 2020

## CURRICULUM VITAE

Yusuf Ziya IDER, PhD

### PERSONAL DATA

**Date & Place of Birth:** 09-10-1951, Erzincan, Turkey

**Address:** Department of Electrical and Electronics Engineering  
Bilkent University, 06800, Bilkent, Ankara, Turkey,

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### ACADEMIC DEGREES

Ph.D. Biomedical Engineering - Northwestern University 1979

M.Sc Biomedical Engineering - University of Southern California 1976

B.Sc. Electrical and Electronics Engineering(EEE) - Middle East  
Technical University (METU) 1973

### EMPLOYMENT HISTORY

09/2000 – Present Professor at Bilkent University, EEE Department

07/1990 - 09/2000 Professor at METU, EEE Department

10/1984 - 07/1990 Assoc. Professor at METU, EEE Department

02/1982 - 10/1984 Assistant Professor at METU, EEE Department

07/1981 - 02/1982 Instructor at METU, EEE Department

07/1980 - 07/1981 Military Service at Gülhane Medical Academy

11/1979 - 03/1980 Instructor at METU, EEE Department

09/1978 - 09/1979 TA at Northwestern University, Dept. of Biomedical Eng.

### PROFESSIONAL AWARDS

Prof. Mustafa Parlar Education and Research Foundation, Young Investigator  
Award – 1989

### MEMBERSHIPS

IEEE member, IET member, IET Chartered Engineer

### CURRENT RESEARCH INTERESTS

Medical Imaging:

Magnetic Resonance Imaging

Electrical Impedance Tomography

Magnetic Resonance – Electrical Impedance Tomography

Magnetic Resonance Electrical Properties Tomography

Acquisition and processing of physiological signals:

VEP based Brain-Computer Interfaces

**CITATIONS:** 2268 *h-index* = 16

**ARTICLES IN REFEREED JOURNALS**

1. Cemre Ariyurek, Bilal Tasdelen, Yusuf Ziya Ider and Ergin Atalar, (2020) “SNR Weighting for Shear Wave Speed Reconstruction in Tomoelastography”, *NMR in Biomedicine*, 2020:e4413, <https://doi.org/10.1002/nbm.4413>
2. Muhammad Nabi Yasinzai and Yusuf Ziya İder, “New approach for designing cVEP BCI stimuli based on superposition of edge responses”, *IOP Publishing, Biomed. Phys. Eng. Express* 6 (2020) 045018 <https://doi.org/10.1088/2057-1976/ab98e7> The initial version of this paper is published in Cornell University arXiv as M. N. Yasinzai, Y. Z. Ider, “New Approach for Designing cVEP BCI Stimuli Based on Superposition of Edge Responses”, 2April 2020, [arXiv:2004.06766v1](https://arxiv.org/abs/2004.06766v1)
3. Yiğit Tuncel, Toygun Başaklar and Yusuf Ziya Ider, “A model based investigation of the period doubling behavior in human steady-state visual evoked potentials”, *IOP Publishing, Biomed. Phys. Eng. Express* 5 (2019) 045030 <https://doi.org/10.1088/2057-1976/ab2d0b>
4. Toygun Başaklar , Yiğit Tuncel and Yusuf Ziya Ider, “Effects of high stimulus presentation rate on EEG template characteristics and performance of c-VEP based BCIs”, *IOP Publishing, Biomed. Phys. Eng. Express* 5 (2019) 035023, <https://doi.org/10.1088/2057-1976/ab0cee>
5. Gokhan Ariturk and Yusuf Ziya Ider, “B1+ phase retrieval for non-quadrature radio frequency excitation and its preliminary application in MR-EPT”, *IOP Publishing Phys. Med. Biol.* **64** (2019) 02NT02 (11pp) <https://doi.org/10.1088/1361-6560/aaf7be>, accepted on 11 December 2018, published on 11 January 2019
6. Safa Ozdemir S, Yusuf Ziya Ider, “bSSFP phase correction and its use in magnetic resonance electrical properties tomography”, *Magn Reson Med.* 2019;81:934–946, <https://doi.org/10.1002/mrm.27446>, accepted on 12 June 2018.
7. Gülşah Yıldız and Yusuf Ziya Ider, "Use of dielectric padding to eliminate low convective field artifact in cr-MREPT conductivity images". *Magn Reson Med.* 2019;81:3168–3184. <https://doi.org/10.1002/mrm.27648>, accepted on 5-12-2018
8. Y. Tuncel, T. Basaklar, Y. Z. Ider, "Period Doubling Behavior in Human Steady State Visual Evoked Potentials", *IOP Publishing, Biomed. Phys. Eng. Express* 4 (2018) 025024, <https://doi.org/10.1088/2057-1976/aaa78f>
9. G. Ariturk, Y. Z. Ider, “Optimal Multichannel Transmission for Improved cr-MREPT”, *IOP Publishing, Phys. Med. Biol.* **63** (2018) 045001 (14pp), <https://doi.org/10.1088/1361-6560/aaa732>, accepted on 12-1-2018
10. Omer Faruk Oran and Yusuf Ziya Ider, “Feasibility of Conductivity Imaging Using Subject Eddy Currents Induced by Switching of MRI Gradients”, *Magnetic Resonance in Medicine* 77:1926–1937 (2017), DOI 10.1002/mrm.26283
11. Necip Gurler, Yusuf Ziya Ider, “Gradient Based Electrical Conductivity Imaging using MR Phase”, *Magnetic Resonance in Medicine* 77:137–150 (2016), DOI 10.1002/mrm.26097
12. Necip Gurler, and Yusuf Ziya Ider, “Numerical Methods and Software Tools for Simulation, Design, and Resonant Mode Analysis of Radio Frequency Birdcage

- Coils Used in MRI”, *Concepts in Magnetic Resonance Part B (Magnetic Resonance Engineering)*, Vol. 45B(1) 13–32 (2015). DOI: 10.1002/cmr.b.21279
13. Fatih S. Hafalir, Omer F. Oran, Necip Gurler, and Yusuf Z. Ider, “Convection-Reaction Equation Based Magnetic Resonance Electrical Properties Tomography (cr-MREPT)”, *IEEE Transactions on Medical Imaging*, Vol. 33, No. 3, March 2014, pp. 777-793 - DOI 10.1109/TMI.2013.2296715
  14. Esra Abacı Turk, Yusuf Ziya Ider, Arif Sanli Ergun, and Ergin Atalar, “An Approximate Fourier Domain Expression for Bloch-Siegert Shift”, *Magnetic Resonance in Medicine* 73:117–125 (2015). (First published on 29-1-2014 as early view online version) DOI 10.1002/mrm.25104
  15. Esra A. Turk, Emre Kopanoglu, Sevin Guney, K. Emre Bugdayci, Y. Ziya Ider, Vakur B. Erturk, and Ergin Atalar, “A Simple Analytical Expression for the Gradient Induced Potential on Active Implants During MRI”, *IEEE Transactions on Biomedical Engineering*, Vol. 59, NO. 10, October 2012, pp. 2845-2851
  16. Omer Faruk Oran, Yusuf Ziya Ider, “Magnetic resonance electrical impedance tomography (MREIT) based on the solution of the convection equation using FEM with stabilization”, *Phys. Med. Biol.* 57 (2012) 5113–5140, doi:10.1088/0031-9155/57/16/5113
  17. Yusuf Ziya Ider, Ozlem Birgul, Omer Faruk Oran, Orhan Arikan, Mark J Hamamura and L Tugan Muftuler, “Fourier transform magnetic resonance current density imaging (FT-MRCDI) from one component of magnetic flux density”, *Phys. Med. Biol.* 55 (2010) 3177–3199, doi:10.1088/0031-155/55/11/013
  18. Metin Yildiz, and Yusuf Ziya Ider, “Model based and experimental investigation of respiratory effect on the HRV power spectrum”, *IOP Physiol. Meas.* Vol.27 (2006) pp.973–988 doi:10.1088/0967-3334/27/10/004
  19. Ersin Şengül, Hayrettin Köymen, and Yusuf Ziya İder, “A Spectrally Efficient PMR System Utilizing Broadcast Service”, *IEEE Transactions on Broadcasting*, Vol.51, N0.4, December 2005, 493-503.
  20. Levent Özparlak, Y. Ziya İder, “Induced current magnetic resonance - electrical impedance tomography”, *IOP Physiological Measurement*, Vol.26 (2005), S289-S305.
  21. Y. Ziya İder and Serkan Onart, “Algebraic Reconstruction for 3D MR-EIT using one component of magnetic flux density”, *IOP Physiological Measurement* Vol. 25. pp.281-294, Feb. 2004.
  22. Özlem Birgül, B Murat Eyuboğlu and Y Ziya İder, “Experimental results for 2D Magnetic Resonance Electrical Impedance Tomography (MR-EIT) using magnetic flux density in one direction”, *Phys. Med. Biol* 48 (2003) 3485-3504
  23. Y. Ziya İder, Serkan Onart and William R.B. Lionheart, “Uniqueness and Reconstruction in Magnetic Resonance-Electrical Impedance Tomography (MR-EIT)”, *Physiol. Meas.* 24(2003) 591-604
  24. Özlem Birgül, B Murat Eyuboğlu and Y Ziya İder, “Current constrained voltage scaled reconstruction (CCVSR) algorithm for MR-EIT and its performance with different probing current patterns” *Phys. Med. Biol* 48 (2003) 653-671

25. Ahmet Türkmen, Yusuf Ziya İder, "Model Based Analysis of the Variation in Korotkoff Sound Onset Time during Exercise", IOP Physiological Measurement Vol. 22, pp.1-13, August 2001.
26. M.K. Batur, A. Oto, Z. Ider, S. Aksoyek, G. Kabakçı, K. Övünç, L. Tokgözoğlu and F Özmen, "T wave alternans can decrease after coronary revascularization", Angiology, V.51, Iss 8, pp 677 - 687, 2000.
27. Y.Z.İder and O.Birgöl, "Use of the magnetic field generated by the internal distribution of injected currents for Electrical Impedance Tomography (MR-EIT)", Turkish J. of Electrical Eng. And Computer Sciences, ELEKTRİK, V.6, Nu.3, pp. 215-225, 1998
28. Y. Z. İder and L. T. Müftüler, "Measurement of AC magnetic field distribution using magnetic resonance imaging", IEEE Transactions on Medical Imaging, vol. 16 no.5, page 617-622, Oct 1997.
29. N.G. Gençer, Y.Z. Ider and S.J. Williamson : "Electrical Impedance Tomography: Induced-Current Imaging Achieved with a Multiple Coil System", IEEE Transactions on Biomedical Engineering, Vol. 43, No:2, pp. 139-149, February 1996.
30. A Baykal, Y. Z. Ider, and Hayrettin Köymen : "Distribution of Aortic Mechanical Prosthetic Valve Closure Sound Model Parameters on the Surface of the Chest", IEEE Transactions on Biomedical Engineering, Volume 42, pp. 358-370, April 1995.
31. Y. Z. Ider, M. Eyüboğlu, M. Kuzuoğlu, K. Leblebicioğlu, U. Baysal, B. K. Çağlar, Ö. Birgöl, "Method for Comparative Evaluation of EIT Algorithms Using Standard Data Sets", Physiol. Meas., 16 ( 1995) A227 - A236.
32. Y.Z. Ider, C. Saki, A. Güçer : "Removal of Power-Line Interference in Signal-averaged Electrocardiography Systems", IEEE Transactions on Biomedical Engineering, Vol.42, pp.731 - 735, July 1995.
33. N.G. Gençer, M.Kuzuoğlu, Y.Z.İder, "Electrical Impedance Tomography Using Induced Currents", IEEE Transactions on Medical Imaging, Vol. 13, No:2, pp. 338 - 350, June 1994.
34. M. Kuzuoğlu, K. Leblebicioğlu, Y.Z.İder, "A Fast Image Reconstruction Algorithm for Electrical Impedance Tomography", Physiol Meas. 15 (1994), A115 - A124.
35. N.Gençer, Y.Z.Ider, "A Comparative Study of Several Exciting Magnetic Fields for Induced Current EIT", Physiol. Meas 15(1994), A51 - A57.
36. Y Z İder, B Nakiboğlu, M Kuzuoğlu, N G Gençer: "Determination of the Boundary of an Object Inserted into a Water Filled Cylinder", Clinical Physics and Physiological Measurement, Volume 13, Supplement A, pp.151-154, 1992.
37. N G Gençer, Y Z Ider, M Kuzuoğlu: "Electrical Impedance Tomography Using Induced and Injected Currents", Clinical Physics and Physiological Measurement, Volume 13, Supplement A, pp.95-99, 1992.
38. M Kuzuoğlu, M Moh'dSaid, Y Z Ider: "Analysis of Three-dimensional Software EIT phantoms by the Finite Element Method", Clinical Physics and Physiological Measurement, Volume 13, Supplement A, pp.135-138, 1992.
39. Y.Ziya Ider and Hayrettin Koymen: "A New Technique for Line Interference Monitoring and Reduction in Biopotential Amplifiers", IEEE Transactions on Biomedical Engineering, Vol.37, No.6, pp.624-631, June 1990.

40. Y. Ziya Ider, Nevzat G. Gencer, Ergin Atalar, Haluk Tosun: "Electrical Impedance Tomography of Translationally Uniform Cylindrical Objects with General Cross Sectional Boundaries", IEEE Transactions on Medical Imaging, Vol.9, No.1, pp.49-59, March 1990.
41. Hayrettin Köymen, Bülent K. Altay, Y. Ziya İder: "A Study of Prosthetic Heart Valve Sounds", IEEE Transactions on Biomedical Engineering Vol. BME-34, No 11, pp. 853-863, November 1987.
42. (In Turkish) C. L. Birincioğlu, K. Babacan, Y. Z. İder, H. Köymen, O. Taşdemir, C. Yakut, K. Bayazıt, "Mekanik Kalp Kapaklarının Operasyon Sonrası Takibinde Yeni bir Spektral Analiz Yaklaşımı", Mavi Bülten, Türkiye Yüksek İhtisas Hastanesi Yayın Organı, Cilt 19, Sayı 1-2, Sayfa: 9-11, 1987
43. İsmet Atalar, Ziya Ider, Rüstü Onur: "A Microprocessor-Based Low Cost Instrument for Collection and On-Line analysis of End-Plate-Potent\_al Data", Turkish Journal of Pharmacology and Clinical Research 1983: 1(2), pp. 121-131.
44. R.N. Bergman, Y.Z. Ider, C.R. Bowden, and C. Cobelli: "Quantitative Estimation of Insulin Sensitivity", American Journal of Physiology 236 (6), pp. 667-677, 1979.
45. J.Hess, Z. Ider, H. Kagiwada and R. Kalaba : "Team Decision-Theory and Integral Equations", Journal of Optimization Theory and Applications, Vol. 22(2), pp. 251-264, 1977.

#### **GRANTS and PROJECTS**

1. 1983-90 Establishment and Management of TYİH-TABOM (Turkish Advanced Specialization Hospital (TYİH) Clinical Engineering Center) as a METU Revolving Fund Project (Total budget from 1983 to 1990 is app. \$3,000,000.-).
2. 1985-1988, "Assistance to the Electrical Engineering Department of METU in Establishing a Clinical Engineering Unit", United Nations Development Program Project UNDP/TUR/85/006, National Consultant
3. 1987-1994, "Establishment of a Medical Imaging Research and Development Laboratory", United Nations Development Program Project UNDP/TUR/87/024, National Consultant
4. 1986-1988, Principle Investigator for METU Research Fund Projects AFP-86-03-01-03 "Development of Hardware and Software Combining Impedance and Ultrasonic Imaging Techniques", AFP-87-03-01-03 "Development of Dual Modality Medical Imaging System", and AFP-88-03-01-03 "Development of Dual Modality Medical Imaging System".
5. 1988 -1998, Establishment and Management as founding partner of Kardiosis Ltd. Co.. Kardiosis specialized in Design Development and Manufacturing of PC Based Electrocardiography System – Developed World's first PC based diagnostic ecg and exercise ecg.
6. 1994-1995, Principle Investigator for METU Research Fund Project Fonu AFP-94-07-00-05 "Imaging Using Magnetic Resonance Technique", budget \$11200.-
7. 1996-97, Principle Investigator for METU Research Fund Project AFP-96-03-01-02 "Modeling and Analysis of ECG signal using digital signal processing techniques", budget \$6300.-

8. 1991-1992, Principle Investigator for Turkish Scientific and Research Council Ankara Electronics Research and Development Institute project 9105-313 “NMR Tomography Development”.
9. 1992-1994, Principle Investigator for Turkish Scientific and Research Council project TÜBİTAK-192E011 (EEEAG-022/DPT) “Development of new Electrocardiological Diagnostic Methods using Modern Signal Processing Techniques for assessment of Risk of Sudden Cardiac Death”, budget \$83,000.-
10. 1992-94, Principle Investigator for Turkish Scientific and Research Council project TÜBİTAK-192E021 (EEEAG-33) “Optimization of Low Field Magnetic Resonance Imaging System Parameters to improve Image Quality”.
11. 1994-1999, Principle Investigator for Turkish Scientific and Research Council project TÜBİTAK-194E007 (EEEAG-128) “Fast and Multiresolution Magnetic Resonance Imaging”, budget \$80,000.-
12. 1996-1998 Consultant to Başkent University for the establishment of Vocational School of Biomedical Technology
13. 1996-1998 , Principle Investigator for Turkish Scientific and Research Council R&D Support Grant project, TÜBİTAK – TİDEB 353 “Computerized ECG Project” granted to Kardiosis Ltd. Company, budget \$567000.-
14. 1998-2003, Principle investigator for Turkish Scientific and Research Council project TÜBİTAK-198E006 “Development of Magnetic Resonance Based High Spatial Resolution Electrical Impedance Tomography System”
15. 1999–2000, Consultant to ERE Inc., through METU Revolving Fund, for Development of Software for Mobile Monitoring of Radio and Television Broadcasts, a project funded by RTUK (Radio and Television Supreme Council of Turkey)
16. Sept 2002 – February 2003, Investigator in “İstanbul Security Department Wireless Systems Planning Project”, supported by ASELSAN A.Ş. budget \$45500.-,
17. 1-2-2008 – 31-8-2011, Principle Investigator for Turkish Scientific and Research Council project TÜBİTAK-107E260 “Magnetic Resonance Electrical Impedance Tomography and Magnetic Resonance Current Density Imaging”, budget TL255000.-.
18. 1-9-2011 – 1-3-2014, Principle Investigator for Turkish Scientific and Research Council project TÜBİTAK-111E090 “Magnetic Resonance Electrical Properties Tomography”, budget TL270000.-.
19. 1-4-2015 – 1-4-2018, Principle Investigator for Turkish Scientific and Research Council project TÜBİTAK-114E522 “High Accuracy and Fast Magnetic Resonance Electrical Properties Tomography”, budget TL457000.-.
20. 1-3-2017 – 30-6-2019, Principle Investigator for Turkish Scientific and Research Council project TUBITAK-116E153 “Development of New Methods to Obtain High Performance in Electroencephalography based Brain-Computer Interfaces”, budget TL516291.-.