Esin Öztürk Işık

Personal

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Research Interests

- Multimodality medical imaging for diagnosis, treatment planning, and monitoring cancer and other diseases
- Parallel imaging theories and their application to magnetic resonance imaging and magnetic resonance spectroscopic imaging
- Fast data acquisition and accurate data quantification
- Proton MR spectroscopic imaging and phosphorus MR spectroscopic imaging
- Machine learning methods for classification of disease characteristics

Education

Ph.D. University of California at Berkeley and University of California at San Francisco
Joint Graduate Program in Bioengineering
August 2002 – March 2007
Major: Biomedical Imaging, Minor: Anatomy and Physiology
Supervisor: Sarah J. Nelson

Thesis title: Implementation of Parallel Imaging Techniques for Lipid Unaliasing and Faster Acquisition for Improving Spatial Characterization of Magnetic Resonance Spectroscopic Imaging of Gliomas.

M.S. University of Alabama at Birmingham
Biomedical Engineering
September 1999-December 2001
Major: Biomedical Imaging
Supervisor: Donald B. Twieg

Thesis title: Assessing the effects of regularization methods on MRI data reconstruction problem and implementing different image reconstruction algorithms for a new fast single shot MRI technique.

B.S. Middle East Technical University, Ankara, Turkey
Computer Engineering
September 1995-June 1999

Grant Support

- 'Determination of Multimodality Magnetic Resonance Imaging Based Biomarkers for Mild Cognitive Impairment in Parkinson Disease'. TUBITAK 1001 Grant. 2015-2018.
- 'Investigation of the Human Brain Metabolism in-vivo in Chronic Liver Failure Using Magnetic Resonance Spectroscopic Editing Techniques'. Bogazici BAP Grant. 2015-2018.
- 'Fast Phosphorus Magnetic Resonance Spectroscopic Imaging using Compressed Sensing for Imaging Brain Tumors'. TUBITAK 3501 National Young Researchers Career Development Program (CAREER), 2012-2014
- 'Phosphorus MR Spectroscopic Imaging of Brain Tumors at 3T (31P_SPECTRA_3T)'. Marie Curie International Reintegration Grant (IRG), 2010- 2014

Honors and Awards

- Bogazici University Academic Encouragement Award, 2014
- TUBITAK EU Project Submission Encouragement Award, 2010
- Educational Stipend Award, ISMRM conferences, 2004-2006
- High Field Workshop Trainee Award, 2007
- Educational Stipend Award, UC Systemwide Bioengineering Symposium, 2003-2006
- UCSF Graduate Division Earle C. Anthony Travel Award, University of California, San Francisco, 2006
- UCB Graduate Division Conference Travel Grant, University of California, Berkeley, 2006

Research, Teaching and Other Work Experience

Research Positions

(September 2014-present) Assistant professor, Biomedical Engineering Institute, Boğaziçi University.

- Has worked on multimodality MR imaging of Parkinson disease at 3T.
- Has worked on MR spectral editing methods for hepatic encephalopaty at 3T.
- Instructor for the following classes:
    - BM641 "Magnetic Resonance Imaging"
    - BM590 "Magnetic Resonance Spectroscopic Imaging"
    - BM506 "Introduction to Biostatistical Methods for Research"
    - BM596 "Magnetic Resonance Image Reconstruction"

(December 2009-September 2014) Assistant professor, Biomedical Engineering, Yeditepe University.

- Has worked on compressed sensing accelerated phosphorus MR spectroscopic imaging of brain tumors at 3T.
- Has worked on machine learning algorithms for classification of disease characteristics.
- Has developed T1 measurement and data acquisition methodologies for phosphorus MR spectroscopic imaging of the healthy human brain and brain tumors at 3T.
- Has worked on accurate data analysis methods for functional MRI data using FSL and SPM.
- Has developed fast T2 measurement and display techniques for human articular cartilage
- Has conducted research on simulation of brain metabolites using GAMMA MRS simulation package.
- Instructor for the following classes:
    - BME 411 "Medical Imaging"
    - BME423 " Biometry for Analytical Reasoning and Modeling"
    - BME444 "Magnetic Resonance Imaging"
    - BME 412 "Magnetic Resonance Spectroscopic Imaging"
    - BME 492 " Engineering Thesis Project"
    - BTEC 526 "Applications of Biostatistics for Research"
    - EE 669 "Advanced Methods In Signal Processing: Medical Image Reconstruction"

(September 2009-September 2014) Part-time instructor. Biomedical Engineering Institute, Bogazici University.

- Has taught BM599 " Introduction to Biostatistics for Research" every Fall semester between 2009 and 2012, and in Spring 2014.
- Taught BM688 "Advanced MRI' in Spring 2010

(March 2007-February 2009) Postdoctoral Fellow. Margaret Hart Surbeck Laboratory of Advanced Imaging, University of California at San Francisco.

- Implemented B1 mapping and transmit gain optimization for accurate spectroscopic imaging of human brain at 7T ultra high field MR systems.
- Implemented elliptical SENSE for high spatial resolution imaging of brain tumors at 7T MR systems.
- Implemented lactate edited MR spectroscopic imaging of brain tumors based on elliptical SENSE at 3T imaging systems.

(August 2002-March 2007) Graduate Research Assistant. Margaret Hart Surbeck Laboratory of Advanced Imaging, University of California at San Francisco.

- Implemented fast data acquisition and reconstruction using conventional and elliptical SENSE and GRAPPA for imaging of brain tumors.
- Implemented software to reduce the aliasing lipid peaks in MR spectra using parallel imaging techniques to increase the accuracy of spectral quantitation of brain tumors.

- Analyzed MR diffusion weighted, perfusion weighted and spectroscopic imaging to understand the anatomical and metabolic characteristics of Grade 3 and Grade 4 brain tumors.
- Studied the longitudinal effects of external beam radiation therapy in brain tumors utilizing MR diffusion weighted, perfusion weighted and spectroscopic imaging.
- Compared data reconstruction strategies in time domain and frequency domain for more accurate MR spectral quantitation of the prostate cancers.

(January 2002- August 2002) Junior Specialist. Department of Radiology, University of California at San Francisco.

- Acquired, processed and interpreted MR imaging and spectroscopic imaging data of brain tumor patients acquired on 1.5T GE Signa clinical scanner.

(September 1999 – December 2001) Graduate Research Assistant, Biomedical Engineering Department, University of Alabama at Birmingham

- Implemented and assessed the effects of regularization methods on MRI reconstruction problems.
- Implemented image reconstruction algorithms for a new fast single shot MRI technique in C and MATLAB.
- Implemented macros to integrate a reconstruction routine written in C into the ParaVision package of the Bruker MR systems.

Teaching

2003: Course assistant at University of California at San Francisco for UCSF/UC Berkeley Bioengineering 241, "Magnetic Resonance Spectroscopy". Organized and led discussion sessions. Prepared and maintained the course website. (http://www.mrsc.ucsf.edu/~esin/Bioe241.html)
2003: Lecturer and course assistant at University of California at San Francisco for 'Parallel Imaging Group Meeting'. Presented various prominent papers of the parallel imaging field. Prepared and maintained the course website. (http://www.mrsc.ucsf.edu/~esin/Pimg.html)
2005: Lecturer and course assistant at University of California at San Francisco for UCSF/UC Berkeley Bioengineering 297, "Parallel Imaging Seminar". Organized and led discussion sessions. Prepared and maintained the course website. (http://www.mrsc.ucsf.edu/~esin/pimgseminar2005.htm)
2005: Lecturer at University of California at San Francisco for UCSF/UC Berkeley Bioengineering 297, "MR Pulse Sequences".
2009 – 2012, 2014: Instructor at the Biomedical Engineering Institute of Bogazici University for BM 599, "Introduction to Biostatistical Methods for Research"
2010: Instructor at the Biomedical Engineering Institute of Bogazici University for BM 688, "Advanced MRI"
2010: Instructor at the Faculty of Engineering of Yeditepe University for ES106, "Technical Report Writing and Presentation Skills"
2010 - 2012: Instructor at the Biomedical Engineering department of Yeditepe University for BME 423, "Biometry for Analytical Reasoning and Modeling"

2010-2013: Instructor at the Biomedical Engineering Department of Yeditepe University for BME444, "Magnetic Resonance Imaging"
2010 - 2014: Instructor at the Biomedical Engineering department of Yeditepe University for BME 421, "Medical Imaging"
2010 - 2014: Instructor at the Biomedical Engineering Department of Yeditepe University for BME412, "Magnetic Resonance Spectroscopic Imaging"
2010 - 2014: Instructor and advisor at the Biomedical Engineering department of Yeditepe University for BME 492, "Engineering Project"
2011-2013: Instructor at the graduate level Biotechnology program of the Science Institute of Yeditepe University for BTEC 526, "Applications of Biostatistics for Research"
2013: Instructor at the graduate level Electrical and Electronics Engineering program of the Science Institute of Yeditepe University for EE669, "Advanced Methods In Signal Processing: Medical Image Reconstruction"
2015: Instructor at the Biomedical Engineering Institute of Bogazici University for BM 590, "Magnetic Resonance Spectroscopic Imaging"
2015: Instructor at the Biomedical Engineering Institute of Bogazici University for BM 506, "Introduction to Biostatistical Methods for Research"
2015-2016: Instructor at the Biomedical Engineering Institute of Bogazici University for BM 596, "Magnetic Resonance Image Reconstruction"
2015-2016: Instructor at the Biomedical Engineering Institute of Bogazici University for BM 641, "Magnetic Resonance Imaging Principles"

Reviewing Services

- The Scientific and Technological Research Council of Turkey (TUBITAK) (grant proposal review panelist)
- Magnetic Resonance in Medicine
- Journal of Magnetic Resonance Imaging
- Computer Methods an Programs in Biomedicine
- International Society of Magnetic Resonance in Medicine (ISMRM) Conference (2014, 2015)
- European Society of Magnetic Resonance in Medicine and Biology (ESMRMB) Conference (2013)
- Electrical, Electronics and Computer Engineering Symposium (ELECO) (2010, 2011,2012, 2014)
- Biomedical Engineering Meeting (BIYOMUT) (2010, 2011, 2012, 2014)
- IEEE Signal Processing and Communication Applications Congress (SIU) (2012, 2013, 2014)
- British Journal of Medicine and Medical Research (2013)

Guest Editorial Services

- Turkish Journal of Biology

- Turkish Journal of Electrical Engineering and Computer Sciences

Administrative Services

- ERASMUS coordinator of the Biomedical Engineering Institute of Bogazici University (2014-present)
- Summer internship coordinator of the Biomedical Engineering Institute of Bogazici University (2014-present)
- ERASMUS coordinator of the Biomedical Engineering department of Yeditepe University (2010-2014)
- MUDEK coordinator of the Biomedical Engineering department of Yeditepe University (2011-2014)
- Double major and minor program coordinator of the Biomedical Engineering department of Yeditepe University (2010-2014)
- Academic advisor at the Biomedical Engineering department of Yeditepe University (2010-2014)

Public Services

Board Member, Human Research and Ethics Committee, Yeditepe University (2012-2014)

Other Work Experience

Ada Engineering Inc., Ankara, Turkey, 1998
Engineering Summer Intern

- Participated in an automation project called KOBINET developed on Delphi platform.
- Specified user requirements, designed, and programmed company web pages using CGI Expert.
- Formed data exchange pathways between Microsoft SQL Server database and web pages.
- Integrated the CGI scripts into the Delphi program.

Turkish Air Force, Department of Automated Information Systems Ankara, Turkey, 1997
Engineering Summer Intern

- Participated in the automation of Air Museum in Istanbul project.
- Learned Delphi and UNIX.
- Organized Air Museum's database.

Skills

Pulse Programming: EPIC (GE, attended an in-house seminar series on EPIC programming held at UCSF), Paradise (Philips, attended Gyrotools Pulse Programming course on 13-17 September 2010 at ETH, Zurich)

Programming Languages: Delphi, UML, ANSI C, C++, GLUT, OpenGL, HTML, SQL, Assembly Language, Pascal, ML, Lisp, Prolog

Application Packages: MATLAB, ParaVision, Rational Rose, Front Page

Medical Imaging Systems: Experience with 1.5, 3, and 7 Tesla human MRI systems (GE), 3 Tesla human MRI system (Philips Achieva, Philips Ingenia) and 4.1 Tesla Bruker MRI system

Professional Societies

- Member, International Society for Magnetic Resonance in Medicine (ISMRM)
- Member, IEEE EMBS
- Member, European Society for Magnetic Resonance in Medicine and Biology (ESMRMB)
- Member, Turkish Society of Magnetic Resonance (TMRD)
- Member, Organization for Human Brain Mapping (OHBM)

Languages

English, Turkish

Publications

(Esin Ozturk Isik has worked part time in 2008 and 2009.)

Peer-reviewed journal articles

1. **Ozturk-Isik E**, Cha S, Chang SM, Berger MS, Nelson SJ. Lipid Unaliasing for MR Spectroscopic Imaging of Gliomas at 3T Utilizing Sensitivity Encoding (SENSE). **Magnetic Resonance in Medicine**. 2006 May;55(5):1164-9.
2. Pels P, **Ozturk-Isik E**, Swanson M, Vanhamme L, Kurhanewicz J, Nelson SJ, Van Huffel S. Quantification of Prostate MRSI Data by Model-Based Time Domain Fitting and Frequency Domain Analysis. **NMR in Biomedicine**. 2006 Apr;19(2):88-97
3. Li Y, Osorio J, **Ozturk-Isik E**, Chen A, Xu D, Crane J, Vigneron DB, Nelson SJ. Considerations in applying 3-D PRESS H-1 brain MRSI with an eight-channel phased-array coil at 3T. **Magnetic Resonance Imaging**. 2006 Dec;24(10):1295-302.
4. Chen AP, Cunningham CH, **Ozturk-Isik E**, Xu D, Hurd RE, Kelly DAC, Pauly JM, Kurhanewicz J, Nelson SJ, Vigneron DB. High Speed 3T MR Spectroscopic Imaging of

Prostate with Flyback Echo Planar Encoding. **Journal of Magnetic Resonance Imaging**. 2007 Jun;25(6):1288-92.
5. Osorio J, **Ozturk-Isik E**, Cha S, Chang SM, Berger MS, Nelson SJ. 3D 1H MRSI of Brain Tumors at 3.0 Tesla using an Eight-Channel Phased-Array Head Coil. **Journal of Magnetic Resonance Imaging**. 2007 Jul;26(1):23-30.
6. **Ozturk E**, Banerjee S, Majumdar S, Nelson SJ. Partially parallel MR spectroscopic imaging of gliomas at 3T. **Proceedings of the IEEE EMBS Annual International Conference**. 2006;1:493-6.
7. Banerjee S, **Ozturk-Isik E**, Nelson SJ, Majumdar S. Fast magnetic resonance spectroscopic imaging at 3 Tesla using autocalibrating parallel technique. **Proceedings of the IEEE EMBS Annual International Conference**. 2006;1:1866-9.
8. **Ozturk-Isik E**, Chen AP, Crane JC, Han ET, Xu D, Vigneron DB, Chang SM, Nelson SJ. 3D Sensitivity Encoded Ellipsoidal MR Spectroscopic Imaging of Gliomas at 3T. **Magn Reson Imaging**. 2009 Nov;27(9):1249-57.
9. Zierhut ML, **Ozturk-Isik E** , Chen AP, Vigneron DB, Nelson SJ. ^{1}H Spectroscopic Imaging of Human Brain at 3T: Comparison of Fast 3D-MRSI Techniques. **J Magn Reson Imaging**. 2009 Sep;30(3):473-80.
10. Banerjee S, **Ozturk-Isik E**, Nelson SJ, Majumdar S. Elliptical MRSI with GRAPPA for imaging brain tumors at 3 Tesla. **Magn Reson Imaging**. 2009 Dec;27(10):1319-25.
11. Park I, Chen AP, Zierhut ML, **Ozturk-Isik E**, Vigneron DB, Nelson SJ. Implementation of 3 T Lactate-Edited 3D (1)H MR Spectroscopic Imaging with Flyback Echo-Planar Readout for Gliomas Patients. **Ann Biomed Eng**. 2011 Jan;39(1):193-204. Epub 2010 Jul 23.
12. Tropp J, Lupo JM, Chen A, Calderon P, McCunee D, Grafendorfer T, **Ozturk-Isik E**, Larson PEZ, Hu S, Yeng YF, Robbe F, Bokb R, Schulteh R, Xu D, Hurd R, Vigneron D, Nelson SJ. Multi-Channel Metabolic Imaging, with SENSE reconstruction, of Hyperpolarized [1-^{13}C] Pyruvate in a Live Rat at 3.0 tesla on a Clinical MR Scanner. **Journal of Magnetic Resonance**. 2011 Jan;208(1):171-7.
13. **Ozturk-Isik E**, Pirzkall A, Lamborn K, Cha S, Chang SM, Nelson SJ. Spatial Characteristics of Newly Diagnosed Grade 3 Glioma Assessed by Magnetic Resonance Metabolic and Diffusion Tensor Imaging. **Translational Oncology**. 2012 Feb; 5(1):10-18.
14. Askin NC, Atis B, **Ozturk-Isik E.** Accelerated Phosphorus Magnetic Resonance Spectroscopic ImagingUsing Compressed Sensing. **Proceedings of the IEEE EMBS Annual International Conference**. 2012;1: 1106-9.
15. Li Y, Xu D, **Ozturk-Isik E**, Lupo JM, Chen AP, Vigneron DB, Nelson SJ. T1 and T2 Metabolite Relaxation Times in Normal Brain at 3T and 7T. **Journal of Molecular Imaging Dynamics.** 2012. S1:002.
16. Çıtak Er F, Firat Z, Kovanlikaya I, Ture U, **Ozturk-Isik E**. Multivariate Discriminant Analysis of Multiparametric Brain MRI to Differentiate High Grade and Low Grade Gliomas - A Computer-Aided Diagnosis Development Study. **Proceedings of the IEEE BIBE Annual International Conference.** 2013 Nov; 2013:1-5. doi: 10.1109/BIBE.2013.6701649.
17. Çıtak Er F, Vural M, Acar O, Esen T, Onay A, **Ozturk-Isik E**. Preliminary Results on Estimation of Final Gleason Score Using Discriminant Analysis on Preoperative Clinical Parameters and Multiparametric MRI Findings in Prostate Cancer. **Proceedings of the International Conference on Applied Informatics for Health and Life Sciences.** 2013:1.
18. Citak Er F, Hatay GH, Okeer E, Yildirim, M, Hakyemez B, **Ozturk-Isik E**. Classification of Phosphorus Magnetic Resonance Spectroscopic Imaging of Brain Tumors Using Support

Vector Machine and Logistic Regression at 3T. **Conf Proc IEEE Eng Med Biol Soc.** 2014 Aug;2014:2392-5. doi: 10.1109/EMBC.2014.6944103.

19. Cebeci H, Aydin O, **Ozturk-Isik E**, Gumus C, Inecikli F, Bekar A, Kocaeli H, Hakyemez B. Assesment of perfusion in glial tumors with arterial spin labeling; comparison with dynamic susceptibility contrast method. **Eur J Radiol.** 2014 Oct;83(10):1914-9.
20. Citak Er F, Vural M, Acar O, Esen T, Onay A, **Ozturk-Isik E.** Final Gleason Score Prediction Using Discriminant Analysis and Support Vector Machine Based on Preoperative Multiparametric MR Imaging of Prostate Cancer at 3T. **Biomed Res Int.** 2014;2014:690787. doi: 10.1155/2014/690787. Epub 2014 Dec 2.
21. Acar Ö, **Ozturk-Isik E**, Mut T, Sağlıcan Y, Onay A, Vural M, Musaoğlu A, Esen T. Comparison of the trifecta outcomes of robotic and open nephron-sparing surgeries performed in the robotic era of a single institution. **Springerplus**. 2015; 4:472. doi: 10.1186/s40064-015-1274-2. eCollection 2015.
22. Hatay GH, Yildirim M, **Ozturk-Isik E**. Considerations in Applying Compressed Sensing for Accelerated Phosphorus MR Spectroscopic Imaging of Human Brain. submitted to Magnetic Resonance Imaging.
23. Okeer E, Hatay GH, Yildirim M, **Ozturk-Isik E**, Hakyemez B. Fast Phosphorus MR Spectroscopic Imaging of Brain Tumors in vivo Using Compressed Sensing at 3T. in preparation.

International Conference Proceedings and Abstracts

1. Okeer E, Hatay GH, Yildirim M, **Ozturk-Isik E**, Hakyemez B. Fast Phosphorus MR Spectroscopic Imaging of Brain Tumors in vivo with Five Fold Scan Time Reduction Using Compressed Sensing at 3T. European Society of Magnetic Resonance in Medicine and Biology Annual Conference. Edinburgh, UK, 1-3 October 2015. (e-poster)
2. Acar Ö, **Ozturk-Isik E**, Mut T, Sağlıcan Y, Onay A, Vural M, Musaoğlu A, Esen T. Comparison of the trifecta outcomes of robotic and open nephron sparing surgeries done in the robotic era of a single institution. Challenges in Laparoscopy and Robotics. Istanbul, Turkey, 4-6 Haziran 2015. (oral presentation)
3. Onay A, Vural M, **Ozturk-Isik E**, Acar Ö, Boge M, Mut T, Gümüş T, Esen T. Fractional anisotrophy ratio for discriminating low grade from high grade prostate cancer. European Society of Urogenital Radiology Annual Meeting, Copenhagen, Denmark, 16-19 Sep 2015. (poster)
4. Yildirim M, Hatay GH, Okeer E, Nicolay K, Hakyemez B, **Ozturk-Isik E.** Fast Phosphorus MR Spectroscopic Imaging of Human Brain in vivo Using Compressed Sensing at 3T. IEEE EMBS Annual International Conference. Chicago, Illinois, USA, 26-30 August 2014. (poster)
5. **Ozturk-Isik E,** Hatay GH, Okeer E, Yildirim M, Sak H, Hakyemez B. Quantitative Assessment of Phosphorus MR Spectroscopic Imaging Metrices of Brain Tumors in vivo at 3T. IEEE EMBS Annual International Conference. Chicago, Illinois, USA, 26-30 August 2014. (poster)
6. Hatay GH, Okeer E, Hakyemez B, **Ozturk-Isik E**. Comparison of 2D Iterative Frame Based and 3D Direct Compressed Sensing Reconstruction for Accelerated Phosphorus MR

Spectroscopic Imaging of Human Brain. International Society of Magnetic Resonance in Medicine Annual Conference, Milan, Italy, 10-16 May 2014. (poster)

7. Citak Er F, Firat Z, Sarikaya B, Ture U, **Ozturk-Isik E**. Supervised Non-Negative Matrix Factorization Based Classification of Multiparametric MR Imaging of Gliomas at 3T. International Society of Magnetic Resonance in Medicine Annual Conference, Milan, Italy, 10-16 May 2014. (e-poster)
8. Citak Er F, Vural M, Acar O, Esen T, Onay A, **Ozturk-Isik E**. Final Gleason Score Prediction Using Discriminant Analysis and Support Vector Machine Based on Preoperative Multiparametric MR Imaging of Prostate Cancer at 3T. International Society of Magnetic Resonance in Medicine Annual Conference, Milan, Italy, 10-16 May 2014. (e-poster)
9. **Ozturk-Isik E**, Cihangiroglu MM, Firat Z, Kilickesmez O, Ulug AM, Ture U. Quantitative Comparison of High and Standard b-Value Diffusion Weighted MR Imaging in Grading Supratentorial Gliomas at 3T. European Society of Magnetic Resonance in Medicine and Biology Annual Conference. Toulouse, France, 3-5 October 2013 (oral presentation)
10. Er F, Firat Z, Korkmaz EE, Sarsilmaz A, Ture U, **Ozturk-Isik E**. An investigation of grading of preoperative gliomas based on multiparametric MRI using support vector machine recursive feature elimination and decision tree classification. European Society of Magnetic Resonance in Medicine and Biology Annual Conference. Toulouse, France, 3-5 October 2013 (e-poster)
11. Hatay GH, Gumus C, Hakyemez B, **Ozturk-Isik E**. Accelerated Phosphorus MR Spectroscopic Imaging of Human Brain Using Compressed Sensing. International Society of Magnetic Resonance in Medicine Annual Conference, Salt Lake City, UT, 19-26 April 2013. Poster number:3810. (traditional poster)
12. Bulut B, Askin NC, Crane JC, **Ozturk-Isik E**. Quantification of Phoshorus MR Spectroscopic Imaging of Human Brain Using Time Domain Fitting versus Frequency Domain Analysis at 3T. European Society of Magnetic Resonance in Medicine and Biology Annual Conference. Lisbon, Portugal, 4-6 October 2012 (e-poster)
13. Demirkan S, Yetimoglu B, Firat Z, **Ozturk-Isik E**, Estimation of Longitudinal Relaxation Times (T1) of Human Brain Phosphorus Metabolites at 3T. European Society of Magnetic Resonance in Medicine and Biology. Leipzig, Germany, 6-8 October 2011. Presentation number:178.
14. **Ozturk-Isik E**, Lupo J, Nelson SJ, Kelley DAC. 1H MR spectroscopic imaging at 7T using B1 field mapping and optimization of transmit gain. European Society of Magnetic Resonance in Medicine and Biology. Antalya, Turkey, 1-3 October 2009 (oral presentation)
15. **Ozturk-Isik E**, Lupo J, Nelson SJ, Kelley DAC. Improved 3D PRESS MRSI at 7T Using B1 Field Mapping and Optimization of Transmit Gain. International Society of Magnetic Resonance in Medicine Annual Conference, Honolulu, HI, 19-24 April 2009. (traditional poster)
16. Kelley DAC, Ozturk-Isik E, Lupo JM. Estimating Saturation Factors for PRESS with Inhomogeneous B1 at 7T. International Society of Magnetic Resonance in Medicine Annual Conference, Honolulu, HI, 19-24 April 2009. (traditional poster)
17. Kelley DAC, Ozturk-Isik E, Lupo JM. Comparison of EPI and Double Angle B_1 Maps at 7T. International Society of Magnetic Resonance in Medicine Annual Conference, Honolulu, HI, 19-24 April 2009. (traditional poster)
18. Lupo JM, Larson PEZ, Chen AP, Tropp J, Ozturk-Isik E, Vigneron DB, Hurd RE, Nelson SJ. Improved Resolution of 2D and 3D [1-^{13}C] Hyperpolarized MRSI Using a 3-Element Coil

and SENSE Reconstruction. p. 2411. International Society of Magnetic Resonance in Medicine Annual Conference, Honolulu, HI, 19-24 April 2009. (traditional poster)

19. Bian W, Crane JC, Shon W, Park I, Ozturk-Isik E, Nelson SJ. A Comparison of Two Phase Correction Strategies in Multi-Channel MRSI Reconstruction. International Society of Magnetic Resonance in Medicine Annual Conference, Honolulu, HI, 19-24 April 2009. (traditional poster)
20. **Ozturk-Isik E**, Bian W, Lupo J, Xu D, Srinivasan R, Park I, Hammond K, Vigneron DB, Chang SM, Nelson SJ. High Resolution Fast Elliptical SENSE MRSI of Gliomas at 7T. International Society of Magnetic Resonance in Medicine Annual Conference, Toronto, Canada, 3-9 May 2008. (traditional poster)
21. **Ozturk-Isik E**, Bian W, Park I, Chen AP, Crane JC, Vigneron DB, Chang SM, Nelson SJ. Lactate Edited 3D MR Spectroscopic Imaging of Gliomas at 3T Using Ellipsoidal SENSE with BASING Pulses. International Society of Magnetic Resonance in Medicine Annual Conference, Toronto, Canada, 3-9 May 2008. (traditional poster)
22. **Ozturk-Isik E**, Chen AP, Crane JC, Xu D, Vigneron DB, Chang SM, Nelson SJ. Tikhonov's Simple Regularization for Elliptical SENSE MR Spectroscopic Imaging of Glioma Patients at 3T. 2007 ISMRM Workshop on Advances in High Field MR, Pacific Grove, CA, 25-28 March 2007. (traditional poster)
23. **Ozturk-Isik E**, Chen AP, Crane JC, Han ET, Xu D, Vigneron DB, Chang SM, Nelson SJ. Elliptical SENSE with Effective 9 Fold Scan Time Reduction for Small FOV 3D MR Spectroscopic Imaging of Glioma Patients at 3T. International Society of Magnetic Resonance in Medicine Annual Conference, Berlin, Germany, 19-25 May 2007. (oral presentation)
24. Pirzkall A, **Ozturk-Isik E**, Saraswathy S, Chang SM, Nelson SJ. Multiparametric analysis of advanced MR imaging changes following concurrent Radiation Chemotherapy. International Society of Magnetic Resonance in Medicine Annual Conference, Berlin, Germany, 19-25 May 2007. (oral presentation)
25. Banerjee S, **Ozturk-Isik E**, Majumdar S, Nelson SJ. 3D Cartesian and Elliptical GRAPPA Based Spectroscopic Imaging of Gliomas at 3 Tesla. International Society of Magnetic Resonance in Medicine Annual Conference, Berlin, Germany, 19-25 May 2007. (oral presentation)
26. **Ozturk-Isik E**, Banerjee S, Chang SM, Majumdar S, Nelson SJ. 3D Parallel Ellipsoidal Samplings for Fast Proton MR Spectroscopic Imaging of Gliomas at 3T. Joint Molecular Imaging Conference, Providence, Rhode Island, 8-11 September 2007. (oral presentation)
27. **Ozturk-Isik E**, Chang SM, Nelson SJ. Ellipsoidal SENSE for Fast Proton Magnetic Resonance Spectroscopic Imaging of Gliomas at 3T. Society for Neuro-Oncology 12th Annual Scientific Meeting, Dallas, TX, 15-18 November 2007. (oral presentation)
28. **Ozturk-Isik E**, Pirzkall A, Chang SM, Nelson SJ. Regional Characteristics of Newly Diagnosed Grade 3 Brain Gliomas Using MRI, 3D MR Spectroscopic Imaging, and Diffusion Tensor Imaging. 11th Annual Meeting of Society for Neuro-Oncology, Orlando, FL, 16-19 November, 2006. (oral presentation)
29. Choy R, **Ozturk-Isik E**, Crawford F, Chang SM, Nelson SJ, Pirzkall A. Analysis of Early Treatment Failure in Patients with Newly Diagnosed GBM using Advanced MR Imaging. The American Association of Physicists in Medicine 48th Annual Meeting, July30-August 3, 2006, Orlando, FL. (oral presentation)

30. **Ozturk-Isik E**, Chen AP, Crane JC, Xu D, Han ET, Vigneron DB, Cha S, Chang SM, Nelson SJ. Transdisciplinary Research for Quantitative SENSE Spectroscopy of Gliomas at 3T. 9th World Conference on Integrated Design & Process Technology. 25-30 June 2006, San Diego, CA. (oral presentation)
31. **Ozturk-Isik E**, Chen AP, Crane JC, Xu D, Han ET, Vigneron DB, Cha S, Chang SM, Nelson SJ. Quantitative SENSE Spectroscopy of Gliomas at 3T. International Society of Magnetic Resonance in Medicine Annual Conference, Seattle, WA, 5-12 May 2006. (oral presentation)
32. Zierhut ML, **Ozturk-Isik E**, Chen AP, Pels P, Cunningham CH, Vigneron DB, Nelson SJ. Spectroscopic Imaging of 1H at 3T: Comparing SNR between Traditional Phase Encoding and Echo-Planar Techniques in the Human Brain. International Society of Magnetic Resonance in Medicine Annual Conference, Seattle, WA, 5-12 May 2006. (oral presentation)
33. **Ozturk E**, Cha S, Chang SM, Berger MS, Nelson SJ. Lipid Unaliasing for MR Spectroscopic Imaging of Gliomas at 3T Utilizing Sensitivity Encoding (SENSE). International Society of Magnetic Resonance in Medicine Annual Conference, Miami Beach, FL 7-13 May 2005. (oral presentation)
34. Li Y, Osorio J, **Ozturk E**, Chen A, Xu D, Crane J, Vigneron DB, Nelson SJ. Considerations in applying 3-D PRESS 1-H MRSI for studies of patients with brain tumors at 3T relative to 1.5T. International Society of Magnetic Resonance in Medicine Annual Conference, Miami Beach, FL 7-13 May 2005. (oral presentation)
35. Osorio J, **Ozturk E**, Cha S, Chang SM, Berger MS, Nelson SJ. 3D MRSI of Brain Tumors at 3 Tesla using an 8 Channel Phased Array Head Coil. International Society of Magnetic Resonance in Medicine Annual Conference, Miami Beach, FL 7-13 May 2005. (traditional poster).
36. Pirzkall A, **Ozturk E**, Choy R, Lupo JM, Lee MC, Cha S, Chang SM, Berger MS, Nelson SJ. MR-based Anatomic, Metabolic and Physiologic Imaging Information on spatial heterogeneity in newly diagnosed GBM. International Society of Magnetic Resonance in Medicine Annual Conference, Miami Beach, FL 7-13 May 2005. (oral presentation)
37. Pirzkall A, **Ozturk E**, Choy R, Lupo JM, Lee MC, Cha S, Chang SM, Berger MS, Nelson SJ. MR imaging based biological characterization of newly diagnosed GBM. 2nd quadrennial meeting of the World Federation of NeuroOncology, 6th meeting of the European Association for NeuroOncology, Edinburgh, United Kingdom 5-8 May 2005. (oral presentation)
38. Pirzkall A, **Ozturk E**, Lee MC, Lupo JM, Crawford FW, Chang CF, Nelson SJ. Assessing tumor response in GBM following concurrent radiation and chemotherapy by means of novel MR based imaging methods characterizing metabolic and physiologic changes. ASTRO 2005, Denver, Colorado, October 16-20, 2005. (oral presentation)
39. **Ozturk E**, Chang SM, Nelson SJ. 3D 1H MRSI, MRI, and Diffusion Tensor Imaging in Newly-Diagnosed Patients with Grade 3 Brain Tumors. International Society of Magnetic Resonance in Medicine Annual Conference, Kyoto Japan, 15-21 May 2004. (oral presentation)
40. Pels P, **Ozturk E**, Vanhamme L, Van Huffel S, Nelson SJ. Model Based Time Domain Fitting versus Frequency Domain Analysis Applied To Prostate MRSI. European Society for Magnetic Resonance in Medicine and Biology 21st Annual Scientific Meeting, Copenhagen, Denmark, September 9 - 12, 2004. (traditional poster)

41. **Ozturk E**, Turner G, Twieg DB. Image Enhancement in Single Shot Direct Parametric Imaging (SS-DPI). Biomedical Engineering Society (BMES) Annual Conference, 2001. (oral presentation)
42. **Ozturk E**, Akella NS, Turner G, Twieg DB. Noise Reduction in EPI Images Using Regularization Methods. Biomedical Engineering Society (BMES) Annual Conference, 2001. (oral presentation)
43. Turner G, **Ozturk E**, Twieg DB. Imaging of the Brain via Single Shot Direct Parametric Imaging (SS-DPI). Biomedical Engineering Society (BMES) Annual Conference, 2001. (oral presentation)
44. Seker R, Tanik MM, Ozaydin B, **Ozturk E**. Representation of N-Queens Problem With Chebyshev Polynomials, Fourth & Fifth World Conference on Integrated Design and Process Technology (IDPT), 1999-2000. (oral presentation)

National Conference Proceedings and Abstracts

1. Onay A, Böge M, Vural M, **Öztürk Işık E**, Acar Ö, Mut T, Gümüş T, Esen T. The fractional anisotrophy ratio in differentiating low and high grade prostate cancer (Düşük ve yüksek gradeli prostat karsinom ayırımında fraksiyonel anisotropi oranı). Türk Radyoloji Derneği Kongresi 2015. Antalya, Turkey, 21-25 Ekim 2015.
2. **Öztürk Işık E.** Fast Multi Nuclei MR Spectroscopic Imaging of Brain Lesions. Emerging Concepts in Advanced Imaging of Neurodegenerative Diseases Workshop. Istanbul, Turkey, 18-20 Ekim 2015.
3. Acar Ö, **Öztürk Işık E**, Vural M, Onay A, Esen T. Prediction of the Histopathological Findings with Machine Learning Based Methods Using Clinical and Radiological Data for Kidney Tumors (Böbrek Tümörlerinde Klinik ve Radyolojik Verilerin Kullanıldığı Makine Öğrenme Temelli Yöntemler ile Histopatolojik Bulguların Öngörülmesi). Ulusal Ürolojik Cerrahi Kongresi 2014. Antalya, Turkey, 5-9 November 2014. (oral presentation)
4. Topkara A, Ökeer E, Hakyemez B, **Öztürk Işık E**, Olcay B. Computational Fluid Dynamics Simulations Based on Time-of-Flight Magnetic Resonance Angiography (Time-of-Flight Manyetik Rezonans Anjiyografi Görüntüleri Üzerinde Hesaplamalı Akışkanlar Dinamiği Simülasyonları). Biyomut 2014. İstanbul, Turkey, 16-17 October 2014. Paper number:51. (oral presentation)
5. Yıldırım M, Hatay GH, Ökeer E, Nicolay K, Hakyemez B, **Öztürk Işık E**. Fast Phosphorus MR Spectroscopic Imaging of Human Brain Using Compressed Sensing (İnsan Beyninin Sıkıştırılmış Algılama Kullanılarak Hızlandırılmış Fosfor MR Spektroskopik Görüntülenmesi). Biyomut 2014. İstanbul, Turkey, 16-17 October 2014. Paper number:107. (poster)
6. Ökeer E, Hatay GH, Yıldırım M, Çıtak Er F, **Öztürk Işık E**, Hakyemez B. Two Dimensional Phosphorus MR Spectroscopic Imaging of Brain Tumors at 3T (Beyin Tümörlerinin 3T Manyetik Alanda İki Boyutlu Fosfor MR Spektroskopik Görüntülenmesi). TMRD 2014. Ankara, Turkey, 22-24 May 2014. (oral presentation)
7. Hatay GH, Ökeer E, Hakyemez B, **Öztürk Işık E**. Comparison of 2D iterative frame based and 3D direct Compressed Sensing Reconstruction for Accelerated Phosphorus MR Spectroscopic Imaging of Human Brain (Hızlandırılmış Fosfor Manyetik Rezonans Spektroskopi ile İnsan Beyninin Görüntülenmesi için İki Boyutlu İteratif ve Üç Boyutlu Direkt Sıkıştırılmış Algılama Yöntemlerinin Karşılaştırılması) TMRD 2014. Ankara, Turkey.

22-24 May 2014. (oral presentation)

8. Çıtak Er F, Fırat Z, Sarıkaya B, Türe U, **Öztürk Işık E**. Supervised Non-Negative Matrix Factorization Based Classification of Multiparametric MR Imaging of Gliomas at 3T (Negatifsiz Matris Çarpanlarına Ayırma (NMF) Yönteminin Multiparametrik 3T MR Görüntülerini Kullanarak Gliom Derecesinin Öngörülmesinde Gözetimli Yöntem Olarak Kullanılması). TMRD 2014. Ankara, Turkey. 22-24 May 2014. (oral presentation)
9. Çıtak Er F, Vural M, Acar O, Esen T, Onay A, **Öztürk Işık E**. Final Gleason Score Prediction Using Discriminant Analysis and Support Vector Machine Based on Preoperative Multiparametric MR Imaging of Prostate Cancer at 3T (Prostat Kanserinde Gleason Skorunun Multiparametrik 3T MR Görüntüleme ile Ayırma Analizi ve Destek Vektör Makineleri Kullanılarak Öngörülmesi). TMRD 2014. Ankara, Turkey. 22-24 May 2014. (oral presentation)
10. Aygen B, Fırat Z, Hatay GH, Hamamcı A, **Öztürk Işık E**. Analysis of Resting State fMRI Data Using Group Independent Component Analysis. (İstirahat Hali (Resting-State) Fonksiyonel Manyetik Rezonans Görüntüleme (RS-fMRG) Verilerinin Grup Bağımsız Bileşen Analizi ile İncelenmesi). TMRD 2014. Ankara, Turkey. 22-24 May 2014. (oral presentation)
11. Onay A, Vural M, Acar Ö, Esen T, **Öztürk Işık E**, Gümüş T, Akpek S. Diffusion Tensor Imaging for Prostate Cancer Detection (Difüzyon Tensör Görüntülemenin Prostat Kanserinde Tanısal Değeri). TRD 2013. Antalya, Turkey, 6-10 November 2013. (e-poster presentation)
12. Kayiş D, Fırat Z, Gürses B, **Öztürk Işık E.** A Graphical User Interface Design for Magnetic Resonance Spectroscopy of Breast Cancer at 3T. Tıptekno 2013. Antalya, Turkey. 31 October-2 November 2013. (oral presentation)
13. Şahin E, Fırat Z, Gürses B, **Öztürk Işık E.** A Graphical User Interface Design for Analyzing T1 Weighted Perfusion Magnetic Resonance Images of Breast Tissue at 3T. Tıptekno 2013. Antalya, Turkey. 31 October-2 November 2013. (oral presentation)
14. Düzenli İ, Gümüş Ç, Cebeci H, Hakyemez B, **Öztürk Işık E.** A Graphical User Interface Design for Arterial Spin Labelling Magnetic Resonance Imaging of Brain Tumors at 3T. Tıptekno 2013. Antalya, Turkey. 31 October-2 November 2013. (oral presentation)
15. Aydın UC, Hatay GH, Firat Z, Askin NC, Ture U, **Ozturk-Isik E.** Analysis of Speech Function in Brain Tumor Patients by Functional Magnetic Resonance Imaging Using SPM and FSL. TMRD 2013. Ankara, Turkey. 23-25 May 2013. (oral presentation)
16. Gumus C, Hatay GH, Askin NC, Hakyemez B, **Ozturk-Isik E**. A Simulation Study for Accelarated Data Acquisition of Phosphorus MR Spectroscopic Imaging of Brain Tumors Using Compressed Sensing. TMRD 2013. Ankara, Turkey. 23-25 May 2013. (oral presentation)
17. Askin NC, Hakyemez B, **Ozturk-Isik E.** A Preliminary Simulation Study for Fast Phosphorus MR Spectroscopic Imaging Using Compressed Sensing. Biyomut 2012, Istanbul, Turkey. 3-5 October 2012. Paper number:36. (oral presentation)
18. Arifoglu E, Tugcu G, Firat Z, **Ozturk-Isik E.** 3D Visualization of Hip and Knee Bone Structure Segmented from Computed Tomography Images. Biyomut 2012, Istanbul, Turkey. 3-5 October 2012. Paper number:35. (poster presentation)
19. Askin NC, Demirkan S, **Ozturk-Isik E**. Partial Saturation Factors and T1 Relaxation Times of 31P MR Spectra of Human Brain at 3T. TMRD 2012. Ankara, Turkey. 24-26 May 2012. (oral presentation)

20. Askin NC, Firat Z, Hamamci A, Bilir B, Ture U, **Ozturk-Isik E**. Analyzing The Activation Points of Hand Movement of Patients Diagnosed With Brain Tumors by Functional Magnetic Resonance Imaging Using SPM. TMRD 2012. Ankara, Turkey. 24-26 May 2012. (oral presentation)
21. Askin NC, Firat Z, Ture U, Kilickesmez O, **Ozturk-Isik E.** Analyzing The Activation of Accurate Points of Hand Movement of Patients Diagnosed With Brain Tumors by Functional Magnetic Resonance Imaging Technique Using FSL. Biyomut 2011, Antalya, Turkey. Paper number:9. (oral presentation)
22. **Ozturk-Isik E**, Nelson SJ. The Differences of MR Spectroscopic Imaging and MR Diffusion Weighted Imaging Parameters in Different Subtypes of Grade 3 Gliomas. Biyomut 2010. Antalya, Turkey. 21-24 April 2010. (oral presentation)
23. Yetimoglu B**, Ozturk-Isik E**, Firat Z, Kilickesmez O, Cihangiroglu M. Fosfor Spektroskopide Kranyal Uygulamalar: Ön Çalişma Sonuçlari. Annual Conference of the Turkish Radiology Society. Antalya, Turkey. 04-09 November 2009. (oral presentation)
24. **Ozturk-Isik E**, Chen AP, Crane JC, Xu D, Han ET, Vigneron DB, Cha S, Chang SM, Nelson SJ. SENSE MR Spectroscopy of Gliomas at 3T. TMRD 2006, Ankara, Turkey, 25-27 May 2006. (poster presentation)

Other Presentations

1. **Ozturk-Isik E**. Clinical Presentation and Imaging Assessment of HGG - Standard Anatomical Imaging and Metabolic and Physiological MR Imaging Techniques. 1st WFNS Neuro-Oncology Course - Multidisciplinary Management of High Grade Glioma, Istanbul, TURKEY, 11 September 2014 (invited speech)
2. **Ozturk-Isik E**. Fast Phosphorus MR Spectroscopic Imaging of Brain Tumors at 3T. 3rd Magnetic Resonance Balkan Outreach Program, Ankara, TURKEY, 23 May 2014 (invited speech)
3. **Ozturk-Isik E**. Functional Magnetic Resonance Imaging. Fmri Workshop**,** Cognitive Neuroscience Program, Yeditepe University, Istanbul, TURKEY, 20 March 2014 (invited speech)
4. **Ozturk-Isik E**. MR Spectroscopic Imaging Techniques - Metabolic Imaging with 1H, 31P, and 23Na. Yeditepe University Hospital, Istanbul, TURKEY, 27 November 2013 (invited speech)
5. **Ozturk-Isik E**. Magnetic Resonance Spectroscopic Imaging of Brain Tumors. A Short Course on Bio-medical Sciences and Engineering, Koc University, Istanbul, TURKEY, 30 May 2012 (invited speech)
6. **Ozturk-Isik E**. Anatomical, Metabolic and Functional Magnetic Resonance Imaging of Brain Tumors. The International Symposium on Health Informatics and Bioinformatics, (HIBIT) 2012, Medical Image Analysis Workshop (Neuroimaging), Nevsehir, TURKEY, 20 April 2012 (invited speech)
7. **Ozturk-Isik E**, Nelson SJ. Fast MR Spectroscopic Imaging of Gliomas using SENSE, UCSF/UCB Joint Graduate Group in Bioengineering Annual Research Conference 2006, Lake Tahoe, CA, 6-8 October 2006
8. **Ozturk-Isik E**, Nelson SJ. Parallel MR Spectroscopic Imaging of Gliomas using Sensitivity Encoding, UC Systemwide Bioengineering Symposium 2006, University of California at Los Angeles, Los Angeles, CA, 24-26 June 2006

9. **Ozturk-Isik E**, Fast Parallel Imaging or Lipid Unaliasing for MR Spectroscopic Imaging of Gliomas at 3T, BUMIL Lab, Bosphorus University, Istanbul, Turkey, June 8, 2006
10. **Ozturk E**, Crane JC, Chen AP, Cha S, Chang SM, Berger MS, Vigneron DB, Nelson SJ. Fast and Accurate 3D 1H MR Spectroscopic Imaging of Gliomas at 3T Using Sensitivity Encoding (SENSE), Brain Tumor Imaging Retreat 2005, Mission Bay Campus, UCSF, San Francisco, CA, October 25, 2005
11. **Ozturk E**, Nelson SJ. Parallel MR Spectroscopic Imaging of Gliomas at 3T, UCSF/UCB Joint Graduate Group in Bioengineering Annual Research Conference 2005, Lake Tahoe, CA, October 1, 2005
12. **Ozturk E**, Cha S, Chang SM, Berger MS, Nelson SJ. Lipid Unaliasing using SENSE for MR Spectroscopic Imaging of Gliomas at 3T, UC Systemwide Bioengineering Symposium 2005, Santa Cruz, CA, June 26, 2005
13. **Ozturk E**, Chang SM, Nelson SJ. 3D 1H MRSI, MRI and Diffusion Tensor Imaging in Newly-Diagnosed Patients with Grade 3 Brain Tumors, UCSF/UCB Bioengineering Research Forum (BERF), San Francisco, CA, March 3, 2004

Other Attended Meetings

1. Joint Brain, Breast, and Prostate 2004 Specialized Program of Research Excellence (SPORE) Scientific Retreat, February 12, 2004, San Francisco, CA, USA
2. UC Systemwide Bioengineering Symposium 2003, 22-23 June 2003, University of California at San Diego, San Diego, CA

Extracurricular Activities

- Member, Bioengineering Association of Students (BEAST), 2002-2007
- Bioengineering Research Forum (BERF) Coordinator, Bioengineering Association of Students (BEAST), 2004-2005
- BEAST Student Room Representative, Bioengineering Association of Students (BEAST), 2005-2006
- Qualifying Exam Advisor, Bioengineering Association of Students (BEAST), 2005-2006
- Student Representative, Faculty Recruitment Visits, 2003-2006
- Student Representative, UCSF/UCB Joint Graduate Group in Bioengineering Program Review, 2006-2007
- Turkish Student Association President, University of Alabama at Birmingham, 2000-2001
- Turkish folk dancer, Yore Folk Dance Ensemble, San Francisco, CA, 2002-2007.