

Dr. İlkey Öksüz

Personal Information

Email: oksuzilkay@itu.edu.tr

Web: <https://avesis.itu.edu.tr/oksuzilkay>

Biography

I am currently a Assist. Prof. in Computer Engineering Department in Istanbul Technical University. Previously, I was a Research Associate in Biomedical Engineering Department of King's College London. I have finished my Ph.D. on Computer, Decision and Systems Science at IMT School for Advanced Studies, a meritocratic post-graduate school in Tuscany in which only the top 2% of candidates are accepted. During my Phd. In 2017, I worked as a visiting researcher in IDCOM lab of The University of Edinburgh. In 2016, I was a postgraduate fellow at Diagnostic Radiology Department of Yale University. My main research interests are in image segmentation, image registration and machine learning, with a certain focus on medical image analysis. My Ph.D. studies focused on cardiac phase resolved Blood-Oxygen-Level-Dependent (BOLD) MR images.

Foreign Languages

English, C2 Mastery

Italian, B1 Intermediate

German, C2 Mastery

Research Areas

Artificial Intelligence, Computer Learning and Pattern Recognition, Engineering and Technology

Academic Titles / Tasks

Research Assistant PhD, University of London-Kings College London, Biomedical Engineering Department, 2017 - Continues

Researcher, University of Edinburgh, Institute for Digital Communications, 2017 - 2017

Research Assistant, Yale University, Radiology & Biomedical Imaging, 2015 - 2016

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Left Ventricle Quantification Challenge: A Comprehensive Comparison and Evaluation of Segmentation and Regression for Mid-Ventricular Short-Axis Cardiac MR Data**
Xue W., Li J., Hu Z., Kerfoot E., Clough J., Oksuz I., Xu H., Grau V., Guo F., Ng M., et al.
IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS, vol.25, no.9, pp.3541-3553, 2021 (Journal Indexed in SCI)
- II. **Inter-vendor performance of deep learning in segmenting acute ischemic lesions on diffusion-weighted imaging: a multicenter study**
ALİS D. C. , Yergin M., ALİŞ C., Topel C., Asmakutlu O., Bagcilar O., Senli Y. D. , ÜSTÜNDAĞ A., SALT V., Dogan S. N. , et

al.

SCIENTIFIC REPORTS, vol.11, no.1, 2021 (Journal Indexed in SCI)

- III. **Brain MRI artefact detection and correction using convolutional neural networks**
Öksüz İ.
COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE, vol.199, 2021 (Journal Indexed in SCI)
- IV. **Comparison of machine learning methods for prediction of osteoradionecrosis incidence in patients with head and neck cancer**
Humbert-Vidan L., Patel V., Oksuz I., King A. P., Urbano T. G.
BRITISH JOURNAL OF RADIOLOGY, vol.94, no.1120, 2021 (Journal Indexed in SCI)
- V. **Deep Learning-Based Detection and Correction of Cardiac MR Motion Artefacts During Reconstruction for High-Quality Segmentation**
Öksüz İ., Clough J. R., Ruijsink B., Anton E. P., Bustin A., Cruz G., Prieto C., King A. P., Schnabel J. A.
IEEE TRANSACTIONS ON MEDICAL IMAGING, vol.39, no.12, pp.4001-4010, 2020 (Journal Indexed in SCI)
- VI. **A multi-scale variational neural network for accelerating motion-compensated whole-heart 3D coronary MR angiography**
Fuin N., Bustin A., Kustner T., Öksüz İ., Clough J., King A. P., Schnabel J. A., Botnar R. M., Prieto C.
MAGNETIC RESONANCE IMAGING, vol.70, pp.155-167, 2020 (Journal Indexed in SCI)
- VII. **Fully Automated, Quality-Controlled Cardiac Analysis From CMR Validation and Large-Scale Application to Characterize Cardiac Function**
Ruijsink B., Puyol-Antón E., Oksuz İ., Sinclair M., Bai W., Schnabel J., Razavi R., King A.
JACC-CARDIOVASCULAR IMAGING, vol.13, no.3, pp.684-695, 2020 (Journal Indexed in SCI)
- VIII. **An objective comparison of detection and segmentation algorithms for artefacts in clinical endoscopy**
Ali S., Zhou F., Braden B., Bailey A., Yang S., Cheng G., Zhang P., Li X., Kayser M., Soberanis-Mukul R. D., et al.
SCIENTIFIC REPORTS, vol.10, no.1, 2020 (Journal Indexed in SCI)
- IX. **Neural Network Based Model Comparison for Intraday Electricity Price Forecasting**
Oksuz İ., Ugurlu U.
ENERGIES, vol.12, no.23, 2019 (Journal Indexed in SCI)
- X. **Automatic CNN-based detection of cardiac MR motion artefacts using k-space data augmentation and curriculum learning**
Oksuz İ., Ruijsink B., Puyol-Anton E., Clough J. R., Cruz G., Bustin A., Prieto C., Botnar R., Rueckert D., Schnabel J. A., et al.
MEDICAL IMAGE ANALYSIS, vol.55, pp.136-147, 2019 (Journal Indexed in SCI)
- XI. **Accurate needle-free assessment of myocardial oxygenation for ischemic heart disease in canines using magnetic resonance imaging**
Yang H., Oksuz İ., Dey D., Sykes J., Klein M., Butler J., Kovacs M. S., Sobczyk O., Cokic I., Slomka P. J., et al.
SCIENCE TRANSLATIONAL MEDICINE, vol.11, no.494, 2019 (Journal Indexed in SCI)
- XII. **The Financial Effect of the Electricity Price Forecasts' Inaccuracy on a Hydro-Based Generation Company**
Ugurlu U., Taş O., Kaya A., Oksuz İ.
ENERGIES, vol.11, no.8, 2018 (Journal Indexed in SCI)
- XIII. **Electricity Price Forecasting Using Recurrent Neural Networks**
Ugurlu U., Oksuz İ., Tas O.
ENERGIES, vol.11, no.5, 2018 (Journal Indexed in SCI)
- XIV. **Statistical Shape Modeling of the Left Ventricle: Myocardial Infarct Classification Challenge**
Suinesiaputra A., Ablin P., Alba X., Alessandrini M., Allen J., Bai W., Cimen S., Claes P., Cowan B. R., D'hooge J., et al.
IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS, vol.22, no.2, pp.503-515, 2018 (Journal Indexed in SCI)
- XV. **Unsupervised Myocardial Segmentation for Cardiac BOLD**
Oksuz İ., Mukhopadhyay A., Dharmakumar R., Tsiftaris S. A.
IEEE TRANSACTIONS ON MEDICAL IMAGING, vol.36, no.11, pp.2228-2238, 2017 (Journal Indexed in SCI)

- XVI. **Comparing algorithms for automated vessel segmentation in computed tomography scans of the lung: the VESSEL12 study**
Rudyanto R. D. , Kerkstra S., van Rielwort E. M. , Fetita C., Brillet P., Lefevre C., Xue W., Zhu X., Liang J., Oksuz İ., et al.
MEDICAL IMAGE ANALYSIS, vol.18, no.7, pp.1217-1232, 2014 (Journal Indexed in SCI)
- XVII. **Standardized evaluation framework for evaluating coronary artery stenosis detection, stenosis quantification and lumen segmentation algorithms in computed tomography angiography**
Kirisli H. A. , SCHAAP M., METZ C. T. , DHARAMPAL A. S. , MEIJBOOM W. B. , PAPADOPOULOU S. L. , DEDIC A., NIEMAN K., DE GRAAF M. A. , Meijs M. F. L. , et al.
MEDICAL IMAGE ANALYSIS, vol.17, no.8, pp.859-876, 2013 (Journal Indexed in SCI)

Refereed Congress / Symposium Publications in Proceedings

- I. **Detection and correction of cardiac MRI motion artefacts during reconstruction from k-space**
ÖKSÜZ İ., Clough J. R. , Ruijsink B., Puyol-Anton E., Bustin A., Cruz G., Prieto C., Rueckert D., King A. P. , Schnabel J. A.
Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 13 - 17 October 2019, vol.11767, pp.695
- II. **Global and local interpretability for cardiac MRI classification**
Clough J. R. , ÖKSÜZ İ., Puyol-Anton E., Ruijsink B., King A. P. , Schnabel J. A.
Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 13 - 17 October 2019, vol.11767, pp.656
- III. **Mechanically Powered Motion Imaging Phantoms: Proof of Concept**
Gomez A., schmitz C., henningson m., Housden J., Noh Y., Zimmer V. A. , Clough J. R. , ÖKSÜZ İ., Toussaint N., King A. P. , et al.
2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Berlin, Germany, 23 - 27 July 2019, vol.2019, pp.2723-2726
- IV. **MAGNETIC RESONANCE FINGERPRINTING USING RECURRENT NEURAL NETWORKS**
ÖKSÜZ İ., Cruz G., Clough J. R. , Bustin A., Fuin N., Botnar R., Prieto C., King A. P. , Schnabel J. A.
2019 IEEE 16TH INTERNATIONAL SYMPOSIUM ON BIOMEDICAL IMAGING (ISBI 2019), Venice, Italy, 8 - 11 April 2019, pp.1537-1540
- V. **Explicit Topological Priors for Deep-Learning Based Image Segmentation Using Persistent Homology**
Clough J. R. , ÖKSÜZ İ., Bryne N., Schnabel J. A. , King A. P.
INFORMATION PROCESSING IN MEDICAL IMAGING, IPMI 2019, Hong Kong, 2 - 07 June 2019
- VI. **Artefact detection in video endoscopy using retinanet and focal loss function**
ÖKSÜZ İ., Clough J. R. , King A. P. , Schnabel J. A.
CEUR Workshop Proceedings, 08 April 2019, vol.2366
- VII. **Left-Ventricle Quantification Using Residual U-Net**
Kerfoot E., Clough J. R. , ÖKSÜZ İ., Lee J., King A. P. , Schnabel J. A.
Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 16 September 2018, vol.11395, pp.371
- VIII. **Deep learning using K-space based data augmentation for automated cardiac MR motion artefact detection**
ÖKSÜZ İ., Ruijsink B., Puyol-Anton E., Bustin A., Cruz G., Prieto C., Rueckert D., Schnabel J. A. , King A. P.
Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 16 - 20 September 2018, vol.11070, pp.250
- IX. **Cardiac MR Motion Artefact Correction from K-space Using Deep Learning-Based Reconstruction**
ÖKSÜZ İ., Clough J. R. , Bustin A., Cruz G., Prieto C., Botnar R., Rueckert D., Schnabel J. A. , King A. P.
MACHINE LEARNING FOR MEDICAL IMAGE RECONSTRUCTION, MLMIR 2018, Granada, Nicaragua, 16 September 2018, vol.11074, pp.21-29
- X. **AUTOMATIC LEFT VENTRICULAR OUTFLOW TRACT CLASSIFICATION FOR ACCURATE CARDIAC MR PLANNING**

ÖKSÜZ İ., Ruijsink B., Puyol-Anton E., Sinclair M., Rueckert D., Schnabel J. A. , King A. P.

2018 IEEE 15TH INTERNATIONAL SYMPOSIUM ON BIOMEDICAL IMAGING (ISBI 2018), Washington, Kiribati, 4 - 07 April 2018, pp.462-465

- XI. **Joint myocardial registration and segmentation of cardiac BOLD MRI**
ÖKSÜZ İ., Dharmakumar R., Tsaftaris S. A.
Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 10 September 2017, vol.10663, pp.12
- XII. **MRI-TRUS Image Synthesis with Application to Image-Guided Prostate Intervention**
Onofrey J., ÖKSÜZ İ., Sarkar S., Venkataraman R., Staib L. H. , Papademetris X.
SIMULATION AND SYNTHESIS IN MEDICAL IMAGING, SASHIMI 2016, Athens, Greece, 21 October 2016
- XIII. **Towards joint segmentation and registration of the myocardium in CP-BOLD MRI at rest**
ÖKSÜZ İ., Dharmakumar R., Tsaftaris S. A.
Journal of Cardiovascular Magnetic Resonance, 27 - 30 January 2016, vol.18, pp.34
- XIV. **BOLD contrast: A challenge for cardiac image analysis**
ÖKSÜZ İ., Marco B., Mukhopadhyay A., Dharmakumar R., Tsaftaris S. A.
Journal of Cardiovascular Magnetic Resonance, 27 - 30 January 2016, vol.18, pp.27
- XV. **Supervised learning of functional maps for infarct classification**
Mukhopadhyay A., ÖKSÜZ İ., Tsaftaris S. A.
Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 5 - 09 October 2015, vol.9534, pp.162
- XVI. **Unsupervised Myocardial Segmentation for Cardiac MRI**
Mukhopadhyay A., ÖKSÜZ İ., Marco B., Dharmakumar R., Tsaftaris S. A.
MEDICAL IMAGE COMPUTING AND COMPUTER-ASSISTED INTERVENTION, PT III, Munich, Germany, 5 - 09 October 2015, vol.9351, pp.12-20
- XVII. **Dictionary Learning Based Image Descriptor for Myocardial Registration of CP-BOLD MR**
ÖKSÜZ İ., Mukhopadhyay A., Marco B., Dharmakumar R., Tsaftaris S. A.
MEDICAL IMAGE COMPUTING AND COMPUTER-ASSISTED INTERVENTION - MICCAI 2015, PT II, Munich, Germany, 5 - 09 October 2015, vol.9350, pp.205-213
- XVIII. **Data-Driven Feature Learning for Myocardial Segmentation of CP-BOLD MRI**
Mukhopadhyay A., ÖKSÜZ İ., Marco B., Dharmakumar R., Tsaftaris S. A.
FUNCTIONAL IMAGING AND MODELING OF THE HEART (FIMH 2015), Maastricht, Netherlands, 25 - 27 June 2015, vol.9126, pp.189-197
- XIX. **REGION GROWING ON FRANGI VESSELNESS VALUES IN 3-D CTA DATA**
ÖKSÜZ İ., ÜNAY D., KADIPAŞAOĞLU A. K.
2013 21ST SIGNAL PROCESSING AND COMMUNICATIONS APPLICATIONS CONFERENCE (SIU), Turkey, 24 - 26 April 2013
- XX. **Automated Aortic Supravalvular Sinus Detection in Conventional Computed Tomography Image**
ÜNAY D., Harman kaya i., ÖKSÜZ İ., KADIPAŞAOĞLU A. K. , ÇUBUK R., ÇELİK L.
2013 21ST SIGNAL PROCESSING AND COMMUNICATIONS APPLICATIONS CONFERENCE (SIU), 24 - 26 April 2013

Citations

Total Citations (WOS):585

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