Asst. Prof. ÖZKAN DOĞANAY

Personal Information

Office Phone: +90 232 311 4810
Other Email: ozkandoganay@gmail.com
Email: ozkan.doganay@ege.edu.tr
Web: https://avesis.ege.edu.tr/8714
Address: ozkandoganay@gmail.com

Biography

Dr. Ozkan Doganay is a medical physicist working with radiologists, lung physiologists, physicists and engineers to develop functional imaging techniques for early detection and quantification of lung diseases.

Dr. Doganay pursued undergraduate studies in Physics at Ege University. Moving to Canada in 2007, he completed his MSc in the Department of Biomedical Physics at Ryerson University. He received his Ph.D. in the Department of Medical Biophysics from the University of Western Ontario in 2015, where he earned a national cancer-research-training award (CIHR in CaRTT).

He went on to work as a post-doctoral researcher in the Department of Oncology at the University of Oxford in 2015. His research focused on the development of specialized magnetic resonance imaging (MRI) methods for detection of functional (i.e. gas exchange) abnormalities in lungs associated with thoracic radiation treatment of cancer and lung ventilation disorders including Chronic Obstructive Pulmonary Deceases (COPD) and asthma.

He is currently an Assistant Prof at Ege University in the Institute of Health Sciences. He builds a new laboratory, named Functional Lung Imaging laboratories at Ege University Hospital Respiratory Diseases Center (EGE-SAM) and develops novel hyperpolarized xenon MR imaging techniques.

His research interests:

Development of rapid and functional MR image acquisition techniques,

Design of RF coils for both proton and non-proton MRI,

Design of Xenon-129 polarizers,

Post-processing and modeling of MR images,

Quantification of lung gas exchange and ventilation including SPECT, CT, and Hyperpolarized MRI for diagnosis of lung diseases including COPD, Asthma, COVID-19.

His lab is Wellcome to graduate and undergraduate students and postdocs from various disciplines.

His current lab members:

Yenal GÖKPEK: He received a Bachelor's and Master's degree in Ege University Physics Department and currently is a Ph.D. student, at Ege University in the Department of Mechanical Engineering, and is a TÜBİTAK 2232 fellow.

Research Areas: Hyperpolarized Xenon-129 Polarizer System Design and Manufacturing, Construction and Manufacturing, 2D-3D Design, Helmholtz Magnetic Field Coils, Composite Materials, Molecular Modeling and Simulation, RF Coils, MR Imaging.

Yasemin YAHŞİ: She is a Ph.D. student, at Ege University in the Department of Mechanical Engineering and is a TUBITAK-2232 fellow.

Research Areas: Hyperpolarized Xenon-129 Polarizer System Design and Manufacturing, Construction and Manufacturing, 2D-3D Design, Mechanical Properties, Composite Materials, Nano Materials, Powder Metallurgy,

Statistical Analysis, and Experimental Design.

Elif SOYA: She is a Ph.D. student, at Ege University in the Institute of Health Sciences, and is a TÜBİTAK 2232 fellow.

Research Areas: Research Ethics, Clinical trials, Medical Imaging, Image analysis techniques, Cell Culture, DNA-RNA-Protein-Mitochondrial DNA Isolation.

Olcay YİĞİT: He is a Ph.D. student at Ege University, in the Department of Electrical and Electronics Engineering, Communication Department. He is working on design and development of RF coils

Research Areas: computer programs such as AWR, CST used for electrical and electronic circuit design

Nur EKENEL: She is a Chemical Engineer, and currently is a Master's student. She is a TÜBİTAK 2247-C fellow.

Research areas: Development of computed tomography image processing algorithms for the diagnosis of COVID-19, Thermal optimization with thermal differential equations solutions, Rubidium filter design.

Özgün Boray YURDAKOŞ: He is a Ph.D. student at Ege University in the Department of Electrical and Electronics Engineering, and is a TUBITAK 2232 fellow.

Research areas: Magnetic Resonance sequence design, Image Analysis, Multidimensional, Signal Processing, Segmentation Methods in Medical Images, Sensors, Nano Materials, Data analysis, PCB Circuit Design

Belkıs Aysu ÖZBEK: She is a first-year medical student at Ege University Faculty of Medicine and is a TÜBİTAK 2247-C fellow.

Research areas: Segmentation of pulmonary airways, development of CT image processing algorithms for patients with COVID-19.

Ceren YÜRÜMEZ: She is a first-year medical student at Ege University Faculty of Medicine and is a TÜBİTAK 2247-C fellow.

Research areas: Segmentation of pulmonary veins, development of image processing algorithms for patients with COVID-19.

Education Information

Doctorate, The University of Western Ontario, Department of Medical Biophysics, Canada 2011 - 2015
Post Graduate, Ryerson University, Faculty of Science , Department of Biomedical Physics, Canada 2008 - 2010
Under Graduate, Ege University, Fen Fakültesi, Fizik Bölümü, Turkey 2002 - 2007

Foreign Languages

English, C2 Proficiency

Certificates, Courses and Trainings

Health&Medicine, Good Clinical Practice (GCP), The Chirchill Hospital , 2019
Health&Medicine, Good Clinical Practice (GCP), The Churchill Hospital, 2016
Finance, Oncology Department Finance Induction, The University of Oxford, 2016
IT, MRI Programming (EPIC), GE Healthcare, 2016
Other, Data Legislation and Technology Governance , John Radcliffe Hospital, 2015
Health&Medicine, Advanced Spectroscopy Training Class, GE Healthcare, 2015
Health&Medicine, Cancer Research and Technology Transfer (CaRTT) Strategic Training Program, Cancer Research Laboratory Program, 2013
Other, Rodent Handling, Intubation, Surgery Methodology, The University of Western Ontario, 2012

Dissertations

Doctorate, Hyperpolarized Xenon-129 Magnetic Resonance Imaging of Radiation-Induced Lung Injury, The University of Western Ontario, Department of Medical Biophysics, 2015
Post Graduate, Monitoring electric field-induced changes in biological tissues by using ultrasound, Ege University, Sağlık Bilimleri Enstitüsü, Sağlık Bilimleri Enstitüsü, 2010

Research Areas

Biophysics, Radiodiagnostic, Biomedical Engineering, Biophysics, Biophysics and Medical Physics, Electronic and magnetic devices, microelectronics, Electronics, radio and microwave technologies

Academic Titles / Tasks

Assistant Professor, Ege University, Sağlık Bilimleri Enstitüsü, Sağlık Bilimleri Enstitüsü, 2020 - Continues
Research Assistant PhD, University of Oxford, Department of Oncology, 2015 - 2019
Research Assistant, The University of Western Ontario, Department of Mathematics, 2014 - 2015
Research Assistant, Robarts Research Institute, Imaging Department , 2011 - 2014
Research Assistant, Ryerson University, Department of Physics, Department of Physics, 2010 - 2011
Instructor, Ryerson University, Department of Physics, Department of Physics, 2008 - 2011

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- **Delayed ventilation assessment using fast dynamic hyperpolarised Xenon-129 magnetic resonance imaging.**
  Chen M., Doganay Ö., Matin T., McIntyre A., Rahman N., Bulte D., Gleeson F.
  European radiology, vol.30, pp.1145-1155, 2020 (Journal Indexed in SCI)
- **CT-based Airway Flow Model to Assess Ventilation in Chronic Obstructive Pulmonary Disease: A Pilot Study.**
  Kim M., Doganay Ö., Matin T., Povey T., Gleeson F.
  Radiology, vol.293, pp.666-673, 2019 (Journal Indexed in SCI)
- **Time-series hyperpolarized xenon-129 MRI of lobar lung ventilation of COPD in comparison to V/Q-SPECT/CT and CT.**
  Doganay Ö., Matin T., Chen M., Kim M., McIntyre A., McGowan D., Bradley K., Povey T., Gleeson F.
  European radiology, vol.29, pp.4058-4067, 2019 (Journal Indexed in SCI)
- **Magnetic resonance imaging of the time course of hyperpolarized ¹²⁹Xe gas exchange in the human lungs and heart.**
  Doganay Ö., Chen M., Matin T., Rigolli M., Phillips J., McIntyre A., Gleeson F.
  European radiology, vol.29, pp.2283-2292, 2019 (Journal Indexed in SCI)
- **Fast dynamic ventilation MRI of hyperpolarized ¹²⁹ Xe using spiral imaging.**
  Doganay Ö., Matin T., Mcintyre A., Burns B., Schulte R., Gleeson F., Bulte D.
  Magnetic resonance in medicine, vol.79, pp.2597-2606, 2018 (Journal Indexed in SCI)
- **Hyperpolarized (129) Xe imaging of the rat lung using spiral IDEAL.**
  Doganay Ö., Wade T., Hegarty E., McKenzie C., Schulte R., Santyr G.
  Magnetic resonance in medicine, vol.76, pp.566-76, 2016 (Journal Indexed in SCI)
- **Quantification of regional early stage gas exchange changes using hyperpolarized (129)Xe MRI in a rat model of radiation-induced lung injury.**
  Doganay Ö., Stirrat E., McKenzie C., Schulte R., Santyr G.
  Medical physics, vol.43, pp.2410, 2016 (Journal Indexed in SCI)

- **Transmit-only/receive-only radiofrequency coil configuration for hyperpolarized Xe-129 MRI of rat lungs**
  Doganay Ö., Thind K., Wade T., Ouriadov A., Santyr G. E.
  CONCEPTS IN MAGNETIC RESONANCE PART B-MAGNETIC RESONANCE ENGINEERING, vol.45, pp.115-124, 2015 (Journal Indexed in SCI)
- **Imaging the electro-kinetic response of biological tissues with optical coherence tomography**
  Wawrzyn K., Demidov V., Vuong B., Harduar M. K. , Sun C., Yang V. X. D. , Doganay Ö., Toronov V., Xu Y.
  OPTICS LETTERS, vol.38, pp.2572-2574, 2013 (Journal Indexed in SCI)
- **Reversibility of electric-field-induced mechanical changes in soft tissues.**
  Doganay Ö., Xu Y.
  IEEE transactions on ultrasonics, ferroelectrics, and frequency control, vol.59, pp.552-6, 2012 (Journal Indexed in SCI)
- **Electric-field induced strain in biological tissues.**
  Doganay Ö., Xu Y.
  The Journal of the Acoustical Society of America, vol.128, 2010 (Journal Indexed in SCI)

Refereed Congress / Symposium Publications in Proceedings

- **Comparison of the thoracic CT-based computational model with hyperpolarized Xenon-129 MRI and SPECT images to assess pulmonary ventilation in COPD patients**
  Kim M., Doganay Ö., Matin T., Povey T., Gleeson F.
  European-Respiratory-Society (ERS) International Congress, Madrid, Spain, 28 September - 02 October 2019, vol.54
- **Gas-exchange and ventilation imaging of COPD in comparison to a healthy cohort using hyperpolarized Xenon-129 MRI**
  Doganay Ö., Kim M., Chen M., Matin T., Gleeson F.
  European-Respiratory-Society (ERS) International Congress, Madrid, Spain, 28 September - 02 October 2019, vol.54

Citations

Total Citations (WOS):53
h-index (WOS):5