Fikret YILDIZ,Ph.D

Hakkâri University, Faculty of Engineering, Department of Electrical and Electronics Engineering, Hakkâri,Turkey

fikretyildiz@hakkari.edu.tr —Tel:0438-211-0893-3329 (ext.)
Mobile : +90 543-540-8789

ORCID Research ID: https://orcid.org/0000-0003-4846-3998

RESEARCH INTEREST

- Microfabrication and unit process development
- Microelectromechanical (MEMS) Devices and Systems
- Low Temperature Co-Fired Ceramic (LTCC) designing and fabrication for MEMS devices
- LTCC based Capacitive Micromachined Ultrasonic Transducer (CMUT) for biomedical applications
- Ultrasonic and Ultrasonic Testing
- Acoustic and MEMS device designing/modelling, fabrication and testing
- Artificial intelligence (AI) and Machine Learning (ML)

EDUCATION

Ph.D. (2013 - 2016)

- **Tohoku University**, Department of Bioengineering and Robotics, Sendai, Japan
- Dissertation : Forward Looking Capacitive Micromachined Ultrasonic Transducer (CMUT) Probe for Intraluminal Imaging (Advisor: Yoichi HAGA)

M.Sc. (2011 - 2012)

- **Istanbul Technical University**, Biomedical Engineering MSc Graduate Program under the Electronics and Communication Department,Istanbul,Turkey
- Thesis : In vitro investigation and comparison of NIR-IR lasers effects in liver tissue (Advisor: Fatma İnci ÇİLESİZ)

B.Sc. (2004 - 2009)

- **Ege University**, Department of Physics, Izmir, Turkey
- GPA : 3.68 (with high honors)

ACADEMIC EXPERIENCE

- **Assoc.Prof** (December 2021 -)
  - Hakkâri University, Faculty of Engineering, Department of Electrical and Electronics Engineering
- Visiting Researcher (2019 - 2023)
  - National Nanotechnology Research Center (UNAM),Bilkent University,Ankara,Turkey
- Assist.Prof (2017 - 2021)
  - Hakkâri University, Faculty of Engineering, Department of Electrical and Electronics Engineering
- Research Assistant,Dr (2016 - 2017)
  - Hakkâri University, Faculty of Engineering, Department of Biomedical Engineering
- Teaching Assistant,Ph.D Student (2013 - 2016)
  - Tohoku University, Department of Bioengineering and Robotics,Sendai,Japan
- Research Assistant (2012 - 2013)
  - Hakkâri University, Faculty of Engineering, Department of Biomedical Engineering
- Research Assistant (2011 - 2012)
  - Istanbul Technical University, Department of Electronics and Communication,Istanbul,Turkey

ADVISED THESIS AND DISSERTATIONS

MSc Thesis

- Abdullah İrfan Yaşar, (2020). "Capacitive micromachined ultrasonic transducer (CMUT): Modelling and investigation of transmission performance under different driving parameters for intravascular applications",TOBB University of Economics and Technology,Graduate School of Engineering and Science,Biomedical Engineering Graduate Programs **(Co-adviser)**

- Evin ZİREK, (Expected to Graduate August,2024). "Prediction of COVID-19 using Machine Learning (ML) Algorithms.",Hakkari University, Instute of Graduate Studies,Electrical and Electronics Engineering Graduate Programs **(adviser)**

- FUNDED RESEARCH PROJECTS

- Co-Investigator (Co-I), "Diagnosis of Sentinel Lymph Node Metastases with Optoacoustic Imaging (Opaksln)",Funded by TÜBİTAK (The Scientific and Technological Research Council of Türkiye) under 1003 - Primary Subjects R&D Funding Program (2019-2023)
- Principal investigator (PI), "Fabrication of Capacitive Micromachinned Ultrasonic Transducer (CMUT) for airborne application", Funded by Hakkâri University Scientific Research Projects Coordinatorship (2018 - 2019)
- Principal investigator (PI), "Tomato quality classification using destructive and non-destructive method", Funded by Hakkâri University Scientific Research Projects Coordinatorship (2017 - 2018)

- Researcher, "Investigation and comparison of NIR-IR Laser effect on liver tissue in vitro", Funded by Istanbul Technical University Scientific Research Projects Coordinatorship (2011 - 2012)

-

PUBLICATIONS

Peer-reviewed Articles

1. Çalıskan Umut, **Yıldız Fikret**, Teke Samet, Özdemir Ahmet Turan (2022). "Impact-Delamination Detection in Repaired-Composite Laminates Using Numerical and Ultrasonic Method",Journal Of Nondestructive Evaluation, 41(2), Doi: 10.1007/s10921-022-00878-x
2. Kavuncuoğlu Erhan,**Yıldız Fikret**, Özdemir Ahmet Turan (2022). "Artificial Intelligence (AI) algorithms for evaluation of optical fiber scintillation detector performance", Optik, 258, Doi: 10.1016/j.ijleo.2022.168791
3. **Yıldız Fikret** (2021). "Anodically bondable Low Temperature Co-Fired Ceramic (LTCC) based Fabry-Perot Interferometer (FPI) pressure sensor design", Optik, 247, Doi:10.1016/j.ijleo.2021.167755
4. Yücelbaş Şule, Erduman Ali, Yücelbaş Cüneyt, **Yildiz Fikret** (2021). "Pre-estimation of Distance-Based Lightning Using Effective Meteorological Parameters", Arabian Journal for Science and Engineering, 46(2), 1529-1539., Doi: 10.1007/s13369-020-05257-0
5. Yasar Abdullah Irfan,**Yildiz Fikret**, Eroğul Osman (2020). "Capacitive micromachined ultrasonic transducer: transmission performance evaluation under different driving parameters and membrane stress for underwater imaging applications", Microsystem Technologies,26, pages 3601–3611.
6. **Yıldız Fikret** (2019). "Optimization of an artificial neural network to estimate laser ablation efficiency", Laser Physics. 29. 115603,Doi: 10.1088/1555-6611/ab43d9.
7. **Yıldız Fikret**,Özdemir Ahmet Turan (2019). "Prediction of laser-induced thermal damage with artificial neural networks", Laser Physics, 29(7), 75205, Doi: 10.1088/1555-6611/ab183b
8. **Yıldız Fikret**,Uluışık Selman, Özdemir Ahmet Turan (2019). "Evaluation Performance of Ultrasonic Testing on Fruit Quality Determination", Journal of Food Quality, 2019, 1-7., Doi: 10.1155/2019/6810865
9. **Yıldız Fikret**,Matsunaga Tadao,Haga Yoichi (2018). "Fabrication and Packaging of CMUT Using Low Temperature Co-Fired Ceramic", Micromachines.DOI:10.3390/mi9110553.
10. **Yıldız Fikret** (2018). "Capacitive Micromachined Ultrasonic Transducer (CMUT): Analytical Evaluation of Membranes Performance Under Fabrication Related Stress", Kahramanmaras Sütçü Imam Üniversitesi, 21(4), 280-285., Doi: https://dx.doi.org/10.17780/ksujes.409395
11. **Yıldız Fikret**,Matsunaga Tadao,Haga Yoichi (2016). "Capacitive micromachined ultrasonic transducer arrays incorporating anodically bondable low temperature co fired ceramic for small diameter ultrasonic endoscope", Micro & Nano Letters, 11(10), 627-631, Doi: 10.1049/mnl.2016.0281
12. **Yıldız Fikret**,Gülsoy Murat,Çilesiz Fatma İnci(2016). "An experimental study on photothermal damage to tissue the role of irradiance and wavelength", Laser Physics, 26(9), 95601, Doi: 10.1088/1054-660X/26/9/095601
13. **Yıldız Fikret**,Matsunaga Tadao,Haga Yoichi (2016). "Capacitive Micromachined Ultrasonic Transducer Packaging for Forward Looking Ultrasonic Endoscope using Low Temperature Co

fired Ceramic Side Via", IEEJ Transactions on Sensors and Micromachines, 136(12), 515-521., Doi: 10.1541/ieejsmas.136.515

Books/Books chapter

1. **Yıldız, F.**, Uluisik, S., Özdemir, A.T.,İmamoğlu,H. (2022). "Non-destructive Testing (NDT): Development of a Custom Designed Ultrasonic System for Fruit Quality Evaluation", In: Pathare, P.B., Rahman, M.S. (eds) Nondestructive Quality Assessment Techniques for Fresh Fruits and Vegetables. Springer, Singapore. https://doi.org/10.1007/978-981-19-5422-1_12

Peer-reviewed Turkish Journal Articles

1. **Yıldız Fikret** (2021). "Isıl Gerilmelerin MEMS Tabanlı Fabry-Pérot Optik Basınç Sensörünün Performansına Etkilerinin Arastırılması", European Journal of Science and Technology, Doi: 10.31590/ejosat.792956 (in Turkish)
2. **Yıldız Fikret** (2021). "Comparison of Two Different Circular Diaphragm Models with Central Mass for MEMS Based FPI Pressure Sensor Performance Based on Sensitivity and Frequency Response", Sakarya University Journal of Science, Doi: 10.16984/saufenbilder.737982
3. Durusu Ali,Erduman Ali,**Yıldız Fikret** (2020). "Comparative Study Of Photovoltaic Array Optimum Tilt Angle and Orientation With Multi-Objective Consideration",Mühendislik Bilimleri ve Tasarım Dergisi, 8(4), 1031-1041., Doi: 10.21923/jesd.745835
4. Erduman Ali,Yüzer Erşan Ömer,Durusu Ali,**Yıldız Fikret** (2020). "An Educational Kit to Promote Teaching of Photovoltaic Systems", Avrupa Bilim ve Teknoloji Dergisi,(19), 916-922.
5. **Yıldız Fikret**(2019). "1940 NM Fiber Lazer Kaynağının Karaciğer Dokusundaki Isıl Hasarının Yapay Sinir Ağlari ile Tahmini", Uludağ University Journal of The Faculty of Engineering, (24). 583-594,Doi: 10.17482/uumfd.410963 (in Turkish).
6. Erduman Ali,**Yıldız Fikret** (2019). "IEC62305-2'ye Göre Yıldırım Risk Analizi: Hakkâri Üniversitesi Örnegi", Bilecik Seyh Edebali Üniversitesi Fen Bilimleri Dergisi, 6(1), Doi: 10.35193/bseufbd.561421 (in Turkish)
7. **Yıldız Fikret**,Sarp Ayse Sena,Gök Çağlar,Gülsoy Murat,Çilesiz Fatma İnci (2012)."Sürekli Dalga NIR IR Dalgaboylarının Karaciğerde Oluşturduğu Isıl Etkilerin in vitro Ortamda Araştırılması", EMO Bilimsel Dergi, 2(4), 63-66 (in Turkish).

Conference Papers

1. Yasar Abdullah Irfan,**Yıldız Fikret**,Eroğul Osman (2019). "Evaluation of CMUT Performance Under Different Excitation Signals and Electrode Coverage", 2019 11th International Conference on Electrical and Electronics Engineering (ELECO), Doi: 10.23919/ELECO47770.2019.8990518
2. Yasar Abdullah Irfan,**Yıldız Fikret** (2019). "Investigation of Different Membrane Materials Effects in CMUT Membrane Behaviour", 2019 3rd International Symposium on Multidisciplinary Studies and Innovative Technologies (ISMSIT), Doi: 10.1109/ISMSIT.2019.8932848
3. **Yıldız Fikret** (2019). "Capacitive Micromachined Ultrasonic Transducer (CMUT) with Different Insulation Layer Size", International Congress on Human-Computer Interaction, Optimization and Robotic Applications (Oral presentation)

4. **Yıldız Fikret** (2018). "MEMS based CMUT Packaging Technology", International Engineering and Technology Symposium (Oral presentation)
5. **Yıldız Fikret**,Özdemir Ahmet Turan,Uluşık Selman (2018). "Custom Design Fruit Quality Evaluation System with Non-Destructive Testing (NDT) Techniques", 2018 International Conference on Artificial Intelligence and Data Processing (IDAP), 49-53., Doi: 10.1109/IDAP.2018.8620769
6. Uluşık Selman,**Yıldız Fikret**,Özdemir Ahmet Turan, (2018). "Image processing based machine vision system for tomato volume estimation", 2018 Electric Electronics, Computer Science, Biomedical Engineerings'xx Meeting (EBBT), 1-4., Doi: 10.1109/EBBT.2018.8391460
7. **Yıldız Fikret**,Matsunaga Tadao,Haga Yoichi (2017). "Low Temperature Co-Fired Ceramic for Capacitive Micromachined Ultrasonic Transducer Fabrication", International Materials Technologies and Metallurgy Conference
8. **Yıldız Fikret**,Erduman Ali,Durusu Ali,Birgili Fatma (2017). "Examination of Stress Level of Patients During Needle Related Invasive Applications", IV. International Multidisciplinary Eurasian Congress (Oral Presentation)
9. **Yıldız Fikret**,Matsunaga Tadao,Haga Yoichi (2017). "Capacitive Micromachined Ultrasonic Transducer (CMUT) Technology: Fabrication and Application(s)", International Congress on New Trends in Science ,Engineering and Technology (ICONTRENDS '17 / BARCELONA) (Oral Presentation)
10. **Yıldız Fikret**,Matsunaga Tadao,Haga Yoichi (2016). "CMUT arrays incorporating anodically bondable LTCC for small diameter ultrasonic endoscope",2016 IEEE 11th Annual International Conference on Nano/Micro Engineered and Molecular Systems(NEMS), Doi:10.1109/NEMS.2016.7758198
11. **Yıldız Fikret**,Matsunaga Tadao,Haga Yoichi (2015). "CMUT Packaging For Forward Looking Ultrasonic Endoscope UsİNg LTCC Side Via",The 32nd Sensor Symposium On Sensors, Micromachines And Applied Systems,Niigata,Japan (Poster Presentation)
12. **Yıldız Fikret**,Sarp Ayse Sena,Gök Çağlar,Gülsoy Murat,Çilesiz Fatma İnci (2012)."Determination Various Photothermal Effects in Liver Tissue", BIYOMUT 2012,Istanbul ,Turkey (Oral Presentation)
13. **Yıldız Fikret**,Sarp Ayse Sena,Gök Çağlar,Gülsoy Murat,Çilesiz Fatma İnci (2012)."A Comparative Study: Evalution of Photothermal Damage at Different Wavelengths", Laser Optics'2012, St.Petersburg,Russia (Oral Presentation)

Patents and Invitations

1. **Title**: A Compact Photoacoustic Probe and Fabrication Method (Applied and under review) (in Turkish)

- Researcher Profile
  1. **ORCID Research ID**:0000-0003-4846-3998
  2. **Linkedin**:https://www.linkedin.com/in/fikret-yildiz-b0103a1bb/
  3. **H-index**: 7 (https://scholar.google.com/citationshl=truser=UWot1$_0$$AAAAJview_op = list_workssortby = pubdate$

TEACHING

Graduate Program Courses

- Scientific Research and Publication Ethics (2023-2024)
- Introduction to MEMS (Micro-electromechanical Systems) (2021-2022)

Undergraduate Program Courses

- EMC (Electromagnetic Compatibility) (2021-2022)
- Medical Electronics (2021-2022, 2020-2021)
- Logic Circuits (2020-2021, 2019-2020)
- Electrical Materials (2020-2021)
- Electromagnetic Field Theory (2020-2021, 2018-2019)
- Electromagnetic Wave Theory (2019-2020, 2018-2019)

ADMINISTRATIVE TASKS

- **Head of Department**, Hakkâri University,Faculty of Engineering, Department of Electrical and Electronics Engineering (2022 - 2023, 2023-)
- **Department Vice Chair**, Hakkâri University, Faculty of Engineering, Department of Electrical and Electronics Engineering (2021 - 2022)
- **Advisory Board Members**,Hakkari University (2019 -)
- **Erasmus Coordinator**,Hakkâri University,Faculty of Engineeering, Department of Electrical and Electronics Engineering (2018 -)
- **Vice director**,Institute of Graduate Studies, Hakkari University (2017 - 2018)

HONORS, FELLOWSHIPS & AWARD

- Full scholarship recipient for Ph.D degree in Tohoku University of Japan awarded by Council of Higher Education of Turkey (2013-2016)
- BSc degree with high honors (2009)

LANGUAGE SKILL

- Turkish (Native)
- English (Fluent)
- Japanese (Beginner)