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Eğitim Bilgileri

Doktora, The University of Michigan, Engineering, EECS, Amerika Birleşik Devletleri 1998 - 2003

Yüksek Lisans, Orta Doğu Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Elektrik Ve Elektronik Mühendisliği (YI) (Tezli), Türkiye 1996 - 1998

Lisans, Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, Türkiye 1991 - 1996

Yabancı Diller

İngilizce, C1 İleri

Yaptığı Tezler

Doktora, Closed-Loop Electromechanical Sigma-Delta Microgravity Accelerometers, The University Of Michigan, Eecs, 2003

Yüksek Lisans, A CMOS integrated PtSi schottky-barrier infrared dedector for night applications, Orta Doğu Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Elektrik Ve Elektronik Mühendisliği (YI) (Tezli), 1998

Araştırma Alanları

Elektrik-Elektronik Mühendisliği, Elektronik, MEMS, Mühendislik ve Teknoloji

Akademik Unvanlar / Görevler

Prof. Dr., Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Elektrik ve Elektronik Mühendisliği Bölümü, 2014 - Devam Ediyor

Doç. Dr., Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Elektrik ve Elektronik Mühendisliği Bölümü, 2009 - 2014

Yrd. Doç. Dr., Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Elektrik ve Elektronik Mühendisliği Bölümü, 2005 - 2009

Öğretim Görevlisi, Orta Doğu Teknik Üniversitesi, Mühendislik Fakültesi, Elektrik ve Elektronik Mühendisliği Bölümü, 2004 - 2005

Araştırma Görevlisi, The University of Michigan, Engineering, EECS, 1998 - 2004

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Verdiği Dersler

Introduction to Analog Integrated Circuits, Lisans, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2012 - 2013

Yönetilen Tezler

Külah H., LARGE FRACTIONAL BANDWIDTH ELECTROMAGNETIC ENERGY HARVESTER AND INTERFACE CIRCUIT WITH 0.1-2 G ACCELERATION RANGE, Yüksek Lisans, A.MERT(Öğrenci), Devam Ediyor

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KÜLAH H., Low power highly programmable analog front-end for 12-channel fully implantable cochlear implants, Yüksek Lisans, A.BERKAY(Öğrenci), 2022

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Külah H., Investigation of the permeability of the cell membrane for different cryoprotectant agents in a continuous thermo-fluidic micro-channel system, Yüksek Lisans, A.HATİBOĞLU(Öğrenci), 2021

Külah H., Fully autonomous piezoelectric energy harvesting interface circuit utilizing low profile nonlinear switching technique, Yüksek Lisans, B.ÇİFTÇİ(Öğrenci), 2020

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Külah H., Işık Akçakaya D., System integration of mems devices on flexible substrate for fully implantable cochlear implant applications, Yüksek Lisans, A.KAAN(Öğrenci), 2019

KÜLAH H., Ultra-low power interface electronics design for fully implantable cochlear implants, Doktora,

H.ULUŞAN(Öğrenci), 2018

KÜLAH H., A lab-on-a-chip system integrating dielectrophoretic detection and impedance counting units for chemotherapy guidance in leukemia, Doktora, Y.DEMİRCAN(Öğrenci), 2018

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KÜLAH H., A microfluidic system for dielectrophoretic characterization of cancer cells, Yüksek Lisans, K.SEL(Öğrenci), 2018

KÜLAH H., YILDIRIM E., A mems based drug effect analysis system utilizing droplet microfluidics, Yüksek Lisans, M.DÜNDAR(Öğrenci), 2018

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KÜLAH H., Design and implementation of an interface circuit for piezoelectric energy harvesters, Doktora, S.CHAMANIAN(Öğrenci), 2018

KÜLAH H., Enrichment of MCF7 Breast Cancer Cells from Leukocytes Through Continuous Flow Dielectrophoresis, Yüksek Lisans, Z.ÇAĞLAYAN(Öğrenci), 2018

KÜLAH H., Design of a radiation hardened PWM controller built on SOI, Yüksek Lisans, E.KILIÇ(Öğrenci), 2018

KÜLAH H., Optimization of compact electromagnetic energy harvesters for wireless sensor applications, Yüksek Lisans, O.YAŞAR(Öğrenci), 2017

KÜLAH H., Development of a parylene bonding based fabrication method for MEMS gravimetric resonant based mass sensors, Yüksek Lisans, F.GÖKÇE(Öğrenci), 2017

KÜLAH H., Lateral mode resonators for in liquid biosensing applications with a second harmonic based read out method, Yüksek Lisans, E.AYDIN(Öğrenci), 2017

KÜLAH H., Lens-free imaging of DEP manipulated cancer cells, Yüksek Lisans, M.KAMİL(Öğrenci), 2017

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KÜLAH H., Mikroakışkan tabanlı ayarlanabilir antenlerin geliştirilmesi, Yüksek Lisans, S.Seyedpour(Öğrenci), 2015

KÜLAH H., AZGIN K., Development of a high yield fabrication process for MEMS based resonant mass sensors for cell detection applications, Yüksek Lisans, T.BERKİN(Öğrenci), 2014

KÜLAH H., Assessment of changes in the dielectric properties of multidrug resistant cancer cells by electrorotation technique, Yüksek Lisans, G.BAHRIEH(Öğrenci), 2014

KÜLAH H., A HIGH THROUGHPUT PARYLENE MICROCHANNEL COULTER COUNTER FOR CELL SIZING AND CELL COUNTING APPLICATIONS, Yüksek Lisans, Ö.SÜMER(Öğrenci), 2014

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KÜLAH H., CMOS A/D converter implementation for IMU applications, Yüksek Lisans, Ö.LÜTFİ(Öğrenci), 2013

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(SEB) and Candida albicans, Yüksek Lisans, D.ERTÜRKAN(Öğrenci), 2012

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KÜLAH H., AKIN T., Capacitive CMOS readouts for high performance MEMS accelerometers, Yüksek Lisans, U.SÖNMEZ(Öğrenci), 2011

BALKAN R. T., KÜLAH H., A MEMS thermoelectric energy harvester for energy generation in mobile systems, Yüksek Lisans, E.TAN(Öğrenci), 2011

KÜLAH H., Design and implementation of low power interface electronics for vibration-based electromagnetic energy harvesters, Yüksek Lisans, A.RAHİMİ(Öğrenci), 2011

KÜLAH H., Design and prototyping of an electromagnetic mems energy harvester for low frequency vibrations, Yüksek Lisans, S.TÜRKYILMAZ(Öğrenci), 2011

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KÜLAH H., Modelling and noise analysis of closed-loop capacitive sigma-delta MEMS accelerometer, Yüksek Lisans, B.BOĞA(Öğrenci), 2009

BALKAN R. T., KÜLAH H., Design, fabrication and implementation of a vibration based MEMS energy scavenger for wireless microsystems, Doktora, İ.SARI(Öğrenci), 2008

KÜLAH H., AKIN T., Capacitive cmos readout circuits for high performance MEMS accelerometers, Yüksek Lisans, R.KEPENEK(Öğrenci), 2008

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KÜLAH H., SERT C., Design and fabrication of a DNA electrophoresis chip based on MEMS technology, Yüksek Lisans, S.SUKAS(Öğrenci), 2007

Jüri Üyelikleri

Ödül, IEEE Türkiye Teşvik ve Doktora Ödülleri , IEEE, Kasım, 2018

SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

- I. **Synergistic hybrid nanostructures for Ultra-Sensitive photoelectrochemical detection of hepatocellular carcinoma ctDNA**
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- II. **Detection of circulating tumor cells in non-metastatic prostate cancer through integration of a microfluidic CTC enrichment system and multiparametric flow cytometry**
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- III. **A microfluidic platform for real-time enumeration and high accuracy retrieval of a very low number of cells**
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- IV. **Pre-enrichment-free detection of hepatocellular carcinoma-specific ctDNA via PDMS and MEMS-based microfluidic sensor**

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- VI. **A pumpless monolayer microfluidic device based on mesenchymal stem cell-conditioned medium promotes neonatal mouse in vitro spermatogenesis**
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- VII. **Analytical Validation of a Spiral Microfluidic Chip with Hydrofoil-Shaped Pillars for the Enrichment of Circulating Tumor Cells**
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- VIII. **Microfluidic-based blood immunoassays**
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- IX. **Spheroid Engineering in Microfluidic Devices**
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- X. **Label-free enrichment of MCF7 breast cancer cells from leukocytes using continuous flow dielectrophoresis**
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- XI. **Thin-Film PZT based Multi-Channel Acoustic MEMS Transducer for Cochlear Implant Applications**
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- XII. **A microfluidic device enabling drug resistance analysis of leukemia cells via coupled dielectrophoretic detection and impedimetric counting**
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- XIII. **A Low-Profile Autonomous Interface Circuit for Piezoelectric Micro-Power Generators**
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- XIV. **13.56 MHz Triple Mode Rectifier Circuit With Extended Coupling Range for Wirelessly Powered Implantable Medical Devices**
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- XV. **Single Supply PWM Fully Implantable Cochlear Implant Interface Circuit with Active Charge Balancing**
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- XVI. **A Self-Powered and Area Efficient SSHI Rectifier for Piezoelectric Harvesters**
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- XVII. **A Prominent Cell Manipulation Technique in BioMEMS: Dielectrophoresis**
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- XVIII. **A Novel Microfluidic Method Utilizing a Hydrofoil Structure to Improve Circulating Tumor Cell Enrichment: Design and Analytical Validation**
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- XIX. Modeling and fabrication of electrostatically actuated diaphragms for on-chip valving of MEMS-compatible microfluidic systems**
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- XX. Enhancement of the Start-Up Time for Microliter-Scale Microbial Fuel Cells (mu MFCs) via the Surface Modification of Gold Electrodes**
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- XXI. A comparative study on EpCAM antibody immobilization on gold surfaces and microfluidic channels for the detection of circulating tumor cells**
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- XXII. Examination of the dielectrophoretic spectra of MCF7 breast cancer cells and leukocytes**
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- XXIII. A Self-Adapting Synchronized-Switch Interface Circuit for Piezoelectric Energy Harvesters**
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- XXIV. Fully Implantable Cochlear Implant Interface Electronics With 51.2- μ W Front-End Circuit**
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- XXV. Power-Efficient Hybrid Energy Harvesting System for Harnessing Ambient Vibrations**
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- XXVI. Exploring the relationship between cytoplasmic ion content variation and multidrug resistance in cancer cells via ion-release based impedance spectroscopy**
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- XXVII. Implementation of Energy-Neutral Operation on Vibration Energy Harvesting WSN**
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- XXVIII. An Adaptable Interface Circuit With Multistage Energy Extraction for Low-Power Piezoelectric Energy Harvesting MEMS**
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- XXX. Thin film piezoelectric acoustic transducer for fully implantable cochlear implants**
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- XXXI. Optimization of AA-Battery Sized Electromagnetic Energy Harvesters: Reducing the Resonance Frequency Using a Non-Magnetic Inertial Mass**
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- XXXIII. **Comparative study on antibody immobilization strategies for efficient circulating tumor cell capture**
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- XXXIV. **A triple hybrid micropower generator with simultaneous multi-mode energy harvesting**
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- XXXV. **Analysis and Elimination of the Capacitive Feedthrough Current on Electrostatically Actuated and Sensed Resonance-Based MEMS Sensors**
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- XL. **Wearable battery-less wireless sensor network with electromagnetic energy harvesting system**
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CXXI. Parylene Tabanlı Çip-Üstü-Laboratuvar Sistemleri için bir Mikro Kapak Tasarımı ve Sızdırma Özelliklerinin Tespiti

Yıldırım E., Arıkan M. A. S., KÜLAH H.

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