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Dr. Arezoo Emadi

Correspondence language: English

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NSERC CRSNG

Canadian Common CV commun canadien

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Dr. Arezoo Emadi

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes

Degrees

- 2015/4 — Post-doctorate, Electrical Engineering, The University of Manitoba
  Supervisors: Douglas Buchanan, 2011/9 - 2015/4
- 2011/8 — Doctorate, Electrical Engineering, The University of Manitoba
  Supervisors: Cyrus Shafai, 2008/1 - 2011/8
- 2010/3 — Certificate, Certificate in Higher Education Teaching, The University of Manitoba
- 2007/2 — Diploma, Microtechnology and Nanoscience, Chalmers University of Technology
  Supervisors: Jan Grahn, 2004/1 - 2007/3

Recognitions

2023/11
Research Excellence Awards
University of Windsor
Prize / Award
Excellence in Research, Scholarship, and Creative Activity, Office of the Vice President Research and Innovation

2022/3
Excellence in Research, Scholarship, and Creative Activity
University of Windsor
Prize / Award
Award for the obtaining of major funding by the for the Ministry of Agriculture, Food and Rural Affairs

2022/3
The Wighton Fellowship Award - 3,000
Sandford Fleming Foundation Jointly with the Engineering Deans of Canada
Prize / Award
To recognize contribution in an innovative, distinctive, and exceptional way, to the instruction of undergraduate laboratory courses in a Faculty or School of Engineering at a Canadian University.

2021/12
Medal of Excellence Award in Service, Faculty of Engineering - 1,000
University of Windsor
Prize / Award
The recipient of the 2021 Medal of Excellence Award in Service, Faculty of Engineering

2021/3
Medal of Excellence for Online Teaching
University of Windsor
Prize / Award
Despite a challenging year and pivoting to virtual teaching due to COVID-19, Dr. Emadi was recognized for inspiring, engaging, and enriching student learning.

2020/7
Editor Choice Award
Journal of Sensors
Honor
In recognition of the outstanding publication in Journal of Sensors on advanced micro and nano gas sensor technology

2020/3
Outstanding Faculty Research Award: Emerging Scholars/Researchers - 2,000
University of Windsor
Prize / Award
This award is the University of Windsor's highest form of recognition for Excellence in Scholarship, Research and Creative Activity. This award recognizes both early excellence in research, scholarship, and creative activity and future promise.

2020/3
Excellence in Research, Scholarship and Creative Activity
University of Windsor
Prize / Award
Award for the obtaining major funding by the Canadian Foundation for Innovation (CFI)

2019/3
Excellence in Scholarship, Research and Creative Activity
University of Windsor
Prize / Award
Award for the obtaining major funding by the Canadian Foundation for Innovation (CFI)

User Profile

Research Specialization Keywords: Microelectromechanical Systems (MEMS), Microsensors and Microactuators, Chemical and Bio Sensors and Transducers, e-Nose Sensor Systems, Nano and Micro Fabrication and Processes, MEMS Ultrasonic Imaging Systems

Employment

2024/12
Founder and President
Anthea Technologies Inc.
At Anthea Tech, our mission is to revolutionize sensing technologies by engineering innovative, high-performance sensors and platforms. We are committed to empowering advancements in biomedical and agricultural applications, fostering sustainable solutions, and improving lives through cutting-edge design and innovation.

2021/7
Associate Professor
Electrical and Computer Engineering, Engineering, Engineering, University of Windsor
Full-time, Associate Professor
Tenure Status: Tenure

2017/7 - 2021/6
Assistant Professor
Electrical and Computer Engineering, Engineering, University of Windsor
Full-time, Assistant Professor
Tenure Status: Tenure Track

2015/4 - 2017/6
Research Engineer
Applied Research, Research and Development Centre of Excellence, Royal Canadian Mint

Leaves of Absence and Impact on Research

2022/9 - 2023/6

Parental, University of Windsor
I was on parental leave from September 2022 to June 2023 and away from work. The absence fully impacted all my research activities for the duration of my 10 months parental leave. This represents a ECR eligibility extension of (10 months x 2) of 20 months.

2020/3 - 2022/4

Other Circumstances, University of Windsor
Experimental and field research work is a core and integral part of all of my research activities. However, all experimental research activities and field measurements were fully suspended between March and December 2020 due to the pandemic. This was a 75% delay in research. A resumption of research work with reduced and limited activity was approved in Summer 2021 when my research team only managed to resume 50% of their experimental activities. The reduced research activity was lifted in Summer 2022. The effect of more than a year fully suspension experimental field research and another year of 50% research activities have affected my research activities. This represents an ECR eligibility window extension by (9 months x 0.75 x 2 + 9 months x 0.5 x 2) of 22.5 months.

Research Funding History

Awarded [n=10]

2026/1 - 2029/12
Principal Investigator

Developing an Autonomous Pest Volatile Detection System, Grant

Funding Sources:
Mathematics of Information Technology and Complex Systems (MITACS) Accelerate
Total Funding - 540,000
Portion of Funding Received - 540,000
Funding Competitive?: Yes

2024/6 - 2029/8
Co-applicant

High-resolution Infrastructure for Dynamic Temperature and Shock Stability Testing of Microsensors, Grant

Funding Sources:
Canada Foundation for Innovation (CFI)
John R. Evans Leaders Fund & ORF
Total Funding - 438,739
Portion of Funding Received - 438,739
Funding Competitive?: Yes

Co-investigator : Simon Rondeau-Gagne;

Principal Applicant : Jalal Ahamed

2024/5 - 2029/4
Co-applicant

Equipment - INSPIRE: Integrated Network for the Surveillance of Pathogens: Increasing REsilience and capacity in Canada’s pandemic response, Grant

Funding Sources:
Canada Foundation for Innovation (CFI)
Biosciences Research Infrastructure Fund (BRIF)
Total Funding - 2,063,509
Portion of Funding Received - 77,250
Funding Competitive?: Yes

Co-director : Robert McKay

2024/5 - 2029/4
Co-applicant

Research INSPIRE: Integrated Network for the Surveillance of Pathogens: Increasing REsilience in Canada’s pandemic response, Grant

Funding Sources:

Canada Foundation for Innovation (CFI)
Canada Biomedical Research Fund (CBRF)
Total Funding - 13,081,736
Portion of Funding Received - 528,000
Funding Competitive?: Yes

Co-director : Michael McKay

2023/5 - 2028/4
Principal Investigator

A New Approach in Extending the Boundaries of Autonomous Early Detection Using a Novel Micromachined Resonator, Grant

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Discovery Grant
Total Funding - 210,000
Portion of Funding Received - 210,000
Funding Competitive?: Yes

2025/6 - 2027/12
Principal Investigator

Demonstrating the Benefits of a Low-Cost Autonomous Electronic-Nose Technology for IPM and Enhancing Produce Yield, Grant

Funding Sources:
Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)
Ontario Agri-Food Research Initiative (OAFRI), Pilot and Demonstration Stream
Total Funding - 150,000
Portion of Funding Received - 150,000
Funding Competitive?: Yes

2021/5 - 2026/4
Principal Investigator

Advanced Flow Management System for Development of Smart Sensor Systems and E-nose Mapping, Grant

Funding Sources:
Canada Foundation for Innovation (CFI)
John R. Evans Leaders Fund & ORF
Total Funding - 120,000
Portion of Funding Received - 120,000
Funding Competitive?: Yes

Co-applicant : Majid Ahmadi; Simon Rondeau-Gagne

2024/4 - 2026/3
Principal Investigator

Micro Electromechanical Systems and Sensors, Grant

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Alliance ECR Voucher Program
Total Funding - 10,000
Portion of Funding Received - 10,000
Funding Competitive?: Yes

2020/12 - 2025/11
Co-applicant

Establishing High Resolution Facility for Micro-component Dynamic Vibrational Analysis, Grant

Funding Sources:
Canada Foundation for Innovation (CFI)
John R. Evans Leaders Fund & ORF
Total Funding - 165,000
Portion of Funding Received - 165,000
Funding Competitive?: Yes

Principal Applicant : Jalal Ahamed

2022/6 - 2025/6
Principal Investigator
Extending Early Detection Boundaries through an Integrated Micromachined Sensor Approach, Grant

Funding Sources:
University of Windsor
Innovating Sustainability
Total Funding - 50,000
Portion of Funding Received - 50,000
Funding Competitive?: Yes

Completed [n=20]

2022/9 - 2024/8
Principal Investigator
A Novel High-Resolution Micromachined Ultrasonic Technology in Dermatology for Skin Cancer Detection, Grant

Funding Sources:
WE-SPARK
Incentive Grant
Total Funding - 30,000
Portion of Funding Received - 30,000
Funding Competitive?: Yes

2023/7 - 2024/6
Principal Investigator
Micromachined Smart Sensor Technologies in Renewable Energy and Energy Storage Systems, Grant

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Alliance International Catalyst
Total Funding - 25,000
Portion of Funding Received - 25,000
Funding Competitive?: Yes

2022/11 - 2023/10
Principal Applicant
Miniaturized Sensors for Monitoring Packaged Food Quality, Grant

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Lab to Market
Total Funding - 20,000
Portion of Funding Received - 20,000
Funding Competitive?: Yes

2017/7 - 2023/6
Principal Investigator
University of Windsor Startup Grant, Grant

Funding Sources:
University of Windsor
Startup Grant
Total Funding - 35,000
Portion of Funding Received - 35,000
Funding Competitive?: No

2018/4 - 2023/4
Principal Investigator
Advanced Micromachined Ultrasonic Transducers for High Performance Medical Imaging Systems, Grant

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Discovery Grant and Discovery Launch Supplement Grant
Total Funding - 152,500
Portion of Funding Received - 152,500
Funding Competitive?: Yes

2022/5 - 2023/4
Integrated Micromachined Sensors for Pest Detection, Grant

Principal Applicant

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Lab to Market
Total Funding - 20,000
Portion of Funding Received - 20,000
Funding Competitive?: Yes

2021/1 - 2022/12
Principal Investigator

An Electronic Nose Integrated Sniffer System for Early Pest Detection, Grant

Funding Sources:
Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)
Place to Grow Agri food Innovation Initiative
Total Funding - 198,000
Portion of Funding Received - 198,000
Funding Competitive?: Yes

2021/1 - 2022/12
Principal Investigator

An Artificial Electronic Nose Integrated System for Autonomous Pest Management and Labor Intensity Reduction in Greenhouse, Grant

Funding Sources:
Agricultural Adaptation Council (AAC)
Greenhouse Competitiveness and Innovation Initiative
Total Funding - 262,625
Portion of Funding Received - 262,625
Funding Competitive?: Yes

2020/4 - 2022/3
Co-applicant

Multi-User in vivo/ex vivo Imaging System, Grant

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Research Tools and Instruments
Total Funding - 150,000
Portion of Funding Received - 150,000
Funding Competitive?: Yes

Principal Applicant : Munir A. Rahim

2020/4 - 2021/5
Co-applicant

Fluorescence and Luminescence Imager, Grant

Funding Sources:
University of Windsor
Research Stimulus Fund
Total Funding - 30,965
Portion of Funding Received - 30,965
Funding Competitive?: Yes

Principal Applicant : Munir A. Rahim

2019/1 - 2021/3
Principal Investigator

Piloting Autonomous Smart Sensor Systems in Ontario Vegetable Greenhouses, Grant

Funding Sources:
Agricultural Adaptation Council (AAC)
Canadian Agricultural Partnership Program
Total Funding - 192,500
Portion of Funding Received - 192,500
Funding Competitive?: Yes

2020/6 - 2021/2
Principal Investigator

Developing a Multiphysics FEA Model of an Inductive Conductivity Sensor, Grant

Funding Sources:
Mathematics of Information Technology and Complex Systems (MITACS)
Accelerate

Total Funding - 30,000
Portion of Funding Received - 30,000
Funding Competitive?: Yes

2020/8 - 2020/12
Principal Investigator

Electronic Nose (e-nose) for Early Detection of COVID19 Biomarker in Breath, Grant

Funding Sources:
Mathematics of Information Technology and Complex Systems (MITACS)
Mitacs Research Internship
Total Funding - 6,000
Portion of Funding Received - 6,000
Funding Competitive?: Yes

2020/7 - 2020/10
Principal Investigator

A Novel High-Resolution Micro Machined Ultrasonic Technology in Dermatology for Skin Cancer Detection, Grant

Funding Sources:
Mathematics of Information Technology and Complex Systems (MITACS)
Mitacs Research Internship
Total Funding - 6,000
Portion of Funding Received - 6,000
Funding Competitive?: Yes

2020/7 - 2020/10
Principal Investigator

A Micropump Based e-Nose System for Detecting COVID-19 Biomarkers, Grant

Funding Sources:
Mathematics of Information Technology and Complex Systems (MITACS)
Mitacs Research Internship
Total Funding - 6,000
Portion of Funding Received - 6,000
Funding Competitive?: Yes

2019/9 - 2020/9
Principal Investigator

Design, Fabrication, Test, and Characterization of Micromachined Ultrasonic Transducer Prototype System for Breast Cancer Imaging Application, Grant

Funding Sources:
University of Windsor
Undergraduate Research Experience Grant
Total Funding - 2,000
Portion of Funding Received - 2,000
Funding Competitive?: Yes

2019/10 - 2019/11
Principal Investigator

Travel Grant UWT SSHRC Exchange Grant, Grant

Funding Sources:
University of Windsor
Travel Grant UWT SSHRC Exchange Gran
Total Funding - 1,000
Portion of Funding Received - 1,000
Funding Competitive?: No

2018/7 - 2019/7
Principal Investigator

Portable BioMEMS Sensor System for Cannabis Detection, Grant

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Engage
Total Funding - 25,000
Portion of Funding Received - 25,000
Funding Competitive?: Yes

2018/10 - 2019/4

Portable BioMEMS Sensor System for Cannabis Detection, Grant

Principal Investigator

Funding Sources:
Ontario Center of Excellence (OCE)
VIP 1
Total Funding - 25,000
Portion of Funding Received - 25,000
Funding Competitive?: Yes

2018/5 - 2019/4
Principal Investigator

Early Diagnostic Tool for Cancer Detection, Grant

Funding Sources:
University of Windsor
Research Grant for Women
Total Funding - 5,000
Portion of Funding Received - 5,000
Funding Competitive?: Yes

Under Review [n=3]

2026/4 - 2032/3
Co-investigator

Canadian Sustainable Agriculture Centre: Training the next generation of innovators to lead Canada's expanding greenhouse industry using smart and sustainable technologies, Grant

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Collaborative Research and Training Experience (CREATE) Program
Total Funding - 1,650,000
Portion of Funding Received - 1,650,000
Funding Competitive?: Yes

Principal Investigator : Isabelle Barrette-Ng

2026/4 - 2031/3
Principal Investigator

Micro-to-quantum Infrastructure for Characterization of Semiconductors, sensors, and advanced materials (MICS), Grant

Funding Sources:
Canada Foundation for Innovation (CFI)
Innovation Fund
Total Funding - 3,707,500
Portion of Funding Received - 3,707,500
Funding Competitive?: Yes

2025/4 - 2026/3
Principal Investigator

A Micromachined Mass Sensor based on Quartz Crystal Microbalance (QCM) Distribution of Mass Loading Area for Medical and Environmental Monitoring Applications, Grant

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Idea to Innovation
Total Funding - 125,000
Portion of Funding Received - 125,000
Funding Competitive?: Yes

Student/Postdoctoral Supervision

Bachelor's Honours [n=58]

2025/7 - 2025/10
Principal Supervisor
Tianyi Wang (In Progress) , University of Windsor
Thesis/Project Title: Chemical sensors
Present Position: Mitacs Globalink Student, Undergraduate Student, Emadi group, University of Windsor

2025/5 - 2025/8
Principal Supervisor
Hugo Montalvo Maldonado (In Progress) , University of Windsor
Thesis/Project Title: Multisensor platform
Present Position: Mitacs Globalink Student, Undergraduate Student, Emadi group, University of Windsor

2025/5 - 2025/8
Principal Supervisor
Ruo Wang (In Progress) , University of Windsor
Thesis/Project Title: Biosensors
Present Position: Mitacs Globalink Student, Undergraduate Student, Emadi group, University of Windsor

2025/1 - 2025/4
Principal Supervisor
Qais El Baser (Completed) , University of Windsor
Thesis/Project Title: Development of Integrated Sensor Platform
Present Position: Undergraduate Student, Emadi group

2025/1 - 2025/4
Principal Supervisor
Fadel Fouani (Completed) , University of Windsor
Thesis/Project Title: Chemical Sensor Arrays
Present Position: Undergraduate Student, Emadi Group

2025/1 - 2025/4
Principal Supervisor
Aiham Alsouki (Completed) , University of Windsor
Thesis/Project Title: Integrated Multi-Sensor Platform
Present Position: Undergraduate Student, Emadi Group

2025/1 - 2025/8
Principal Supervisor
Louis Diab (In Progress) , University of Windsor
Thesis/Project Title: MEMS Sensors
Present Position: Undergraduate Student, Emadi group, University of Windsor

2025/1 - 2026/12
Principal Supervisor
Jonathan Friesen (In Progress) , University of Windsor
Thesis/Project Title: Gas sensor array for VOC detection
Present Position: Undergraduate Student, Emadi Group

2025/1 - 2025/5
Principal Supervisor
Tristan Santos (Completed) , University of Windsor
Thesis/Project Title: electronic nose technology for biomedical applications
Present Position: Undergraduate Student, Emadi group

2025/1 - 2025/8
Principal Supervisor
Aena Hussain (In Progress) , University of Windsor
Thesis/Project Title: Design and Fabrication of a VOC Concentrator Automated Test Apparatus
Present Position: Undergraduate Student, Emadi group

2024/9 - 2025/8
Principal Supervisor
Bruce Ye (In Progress) , University of Windsor
Thesis/Project Title: Micromachined Transducers
Present Position: Undergraduate Student, Emadi Group

2024/9 - 2024/12
Principal Supervisor
Mohamed Hallal (Completed) , University of Windsor
Thesis/Project Title: electronic nose
Present Position: Undergraduate Student, University of Windsor

2024/6 - 2024/10
Principal Supervisor
Abhijith Cheppallimuriyil Bijukumar (Completed) , University of Windsor
Thesis/Project Title: Chemical Sensor Arrays
Present Position: Undergraduate Student

2024/5 - 2024/8 Principal Supervisor	Felix Antonio Cepeda García (Completed) , University of Windsor Thesis/Project Title: Micromachined sensors Present Position: Undergraduate Student
2024/5 - 2024/8 Principal Supervisor	Ana Karen Graciano Alvarez (Completed) , University of Windsor Thesis/Project Title: Ultrasonic Transducer Present Position: Undergraduate Student
2024/4 - 2025/3 Principal Supervisor	Ali Ammar (Completed) , University of Windsor Thesis/Project Title: Development of an integrated sensor test platform Present Position: Undergraduate Student
2024/4 - 2024/12 Principal Supervisor	Jad Nizam (Completed) , University of Windsor Thesis/Project Title: Micromachined sensor characterization Present Position: Undergraduate Student
2024/1 - 2025/12 Principal Supervisor	Michael Schembri (In Progress) , University of Windsor Thesis/Project Title: Development of micromachined sensor systems Present Position: Undergraduate Student, Emadi Group
2023/9 - 2024/4 Principal Supervisor	Muhammad Abdelrazzaq (Completed) , University of Windsor Thesis/Project Title: Biomedical Sensor Systems Present Position: Undergraduate Student, University of Windsor
2023/9 - 2024/12 Principal Supervisor	Malek Mekawi (Completed) , University of Windsor Thesis/Project Title: Biomedical Sensors Present Position: Undergraduate Student
2023/9 - 2024/5 Principal Supervisor	Sabeeh Manzoor (Completed) , University of Windsor Thesis/Project Title: Electronic Nose system for medical applications Present Position: Undergraduate Student, University of Windsor
2023/9 - 2024/12 Principal Supervisor	Jathushan Krishnamohan (Completed) , University of Windsor Thesis/Project Title: MEMS transducers Present Position: Undergraduate Student
2023/5 - 2024/12 Principal Supervisor	Akib Shamsuddin (Completed) , University of Windsor Thesis/Project Title: Micromachined Sensors Present Position: Undergraduate Student
2023/5 - 2023/8 Principal Supervisor	Noemy Rochefuille (Completed) , University of Windsor Thesis/Project Title: Ultrasonic Transducers Present Position: Undergraduate Student
2023/1 - 2024/8 Principal Supervisor	Fadilah Khan (Completed) , University of Windsor Thesis/Project Title: Biosensors for personal health Present Position: Unknown
2022/9 - 2023/12 Principal Supervisor	Manveer Aujla (Completed) , University of Windsor Thesis/Project Title: Micromachined ultrasonic transducers Present Position: Unknown
2022/9 - 2022/12 Principal Supervisor	Marlena Mustac (Completed) , University of Windsor Thesis/Project Title: Impedance-based gas sensors Present Position: Unknown
2022/5 - 2022/8 Principal Supervisor	Reva Teotia (Completed) , University of Windsor Thesis/Project Title: Micromachined Mass Resonators Present Position: Undergraduate Student, Birla Institute of Technology and Science Pilani

2022/5 - 2022/8 Principal Supervisor	Harshithaa Ganesan (Completed) , University of Windsor Thesis/Project Title: Polymer-based Gas Sensors Present Position: Undergraduate Student, SASTRA University
2022/5 - 2022/8 Principal Supervisor	Jayant Naga (Completed) , University of Windsor Thesis/Project Title: Micromachined Ultrasonic Transducers Present Position: Undergraduate Student, IIT Kanpur
2021/9 - 2023/4 Principal Supervisor	Annalise Gignac (Completed) , University of Windsor Thesis/Project Title: Advanced e-Nose Systems for Environmental Monitoring Applications Present Position: Medical Student
2021/9 - 2024/8 Principal Supervisor	Maryam Bhat (Completed) , University of Windsor Thesis/Project Title: Micromachined Gas Sensors Present Position: Undergraduate Student, Emadi Group
2021/7 - 2021/9 Principal Supervisor	Yuan Cao (Completed) , University of Windsor Thesis/Project Title: Test and Characterization of Chemiresistor Material Tester for Environmental Monitoring Application Present Position: Undergraduate Student, Chang'an University
2021/6 - 2021/8 Principal Supervisor	Bhaskar Garg (Completed) , University of Windsor Thesis/Project Title: Test and Evaluation of PMUT Transducer Present Position: Undergraduate Student, IIT Roorkee
2021/5 - 2022/4 Principal Supervisor	Kevin Mahzoon (Completed) , University of Windsor Thesis/Project Title: Design and development of sensing materials for micromachined sensors Present Position: Unknown
2021/1 - 2021/4 Principal Supervisor	Mahwish Khan (Completed) , University of Windsor Thesis/Project Title: Integrated Chemiresistor-based Sensors for Greenhouse Monitoring Applications Present Position: ASIC Digital Verification Engineer - Ciena
2020/9 - 2021/4 Principal Supervisor	Celia Liburdi (Completed) , University of Windsor Thesis/Project Title: Fast Response Micromachined Gas Sensor for Leakage Detection Present Position: Unknown
2020/1 - 2020/5 Principal Supervisor	Adonay Tecle (Completed) , University of Windsor Thesis/Project Title: MEMS Acoustic Imaging Present Position: ADAS Sensing Systems Engineer at Ford Motor Company
2019/9 - 2022/8 Principal Supervisor	Aya Abu-Libdeh (Completed) , University of Windsor Thesis/Project Title: E-nose System for Medical Applications Present Position: Graduate Student, Emadi Group
2019/9 - 2019/12 Principal Supervisor	Owen Corchis-Scott (Completed) , University of Windsor Thesis/Project Title: Field Effect Transistors Present Position: Unknown
2019/9 - 2020/5 Principal Supervisor	Tara Ahmadi (Completed) , University of Windsor Thesis/Project Title: Capacitive Micromachined Mass Sensors Present Position: Unknown
2019/9 - 2020/8 Principal Supervisor	Rohan Dhillon (Completed) , University of Windsor Thesis/Project Title: MEMS Ultrasonic Transducers Present Position: Unknown

2019/9 - 2020/5 Principal Supervisor	Lidia Kojic (Completed) , University of Windsor Thesis/Project Title: Integrated Sensors for Environmental Monitoring Applications Present Position: Master of Information (Human-Centered Data Science) Candidate at the University of Toronto
2019/6 - 2019/9 Principal Supervisor	Liwen Lu (Completed) , University of Windsor Thesis/Project Title: Capacitive MEMS Transducer Characterizations Present Position: Unknown
2019/6 - 2019/8 Principal Supervisor	Sun Haoyang (Completed) , University of Windsor Thesis/Project Title: MEMS Capacitive Transducers Present Position: Unknown
2019/6 - 2019/8 Principal Supervisor	Tian Yuxin (Completed) , University of Windsor Thesis/Project Title: MEMS Ultrasonic Imaging Present Position: Unknown
2019/5 - 2019/8 Principal Supervisor	Daniom Hailemariam (Completed) , University of Windsor Thesis/Project Title: Volatile Organic Compound Detection in Greenhouse Environment Present Position: Unknown
2019/5 - 2019/8 Principal Supervisor	Shalaine Manalang (Completed) , University of Windsor Thesis/Project Title: Micromachine Transducer and Early Diagnostic Tools Present Position: Unknown
2019/5 - 2019/7 Principal Supervisor	Rohit Karmarkar (Completed) , University of Windsor Thesis/Project Title: Electrical Characterization of MEMS Based Transducers Present Position: Graduate Student, UCLA
2019/5 - 2019/8 Principal Supervisor	Marc Pineault (Completed) , University of Windsor Thesis/Project Title: Smart Sensor System Test and Evaluation Setup Present Position: Project Engineer at Plastic Omnium
2019/5 - 2020/5 Principal Supervisor	Daniele De Luca (Completed) , University of Windsor Thesis/Project Title: Integrated Smart Sensor System Present Position: Graduate Student, Western University
2019/5 - 2019/8 Principal Supervisor	Brendan McCarthy (Completed) , University of Windsor Thesis/Project Title: MEMS Micromirror Present Position: Controls Designer at Valiant TMS
2019/5 - 2020/5 Principal Supervisor	Nico Cardillo (Completed) , University of Windsor Thesis/Project Title: Development of portable integrated sensor platform Present Position: ADAS Core Systems Diagnostics Engineer, Ford Motor Company
2019/1 - 2019/5 Principal Supervisor	Emilio Quaggiotto (Completed) , University of Windsor Thesis/Project Title: Biometric Monitoring in Support of Human Performance Prediction and Optimization Present Position: Graduate Student, University of Windsor
2018/9 - 2019/5 Principal Supervisor	Reid Zaffino (Completed) , University of Windsor Thesis/Project Title: Design of Bias-T for Ultrasonic Imaging System Present Position: Deep Learning Engineer at I-50
2018/9 - 2019/2 Principal Supervisor	Adam Hassan (Completed) , University of Windsor Thesis/Project Title: Design of the OFET sensor read-out circuit Present Position: Graduate Student, University of Windsor
2018/9 - 2021/8 Principal Supervisor	Eman El-Masri (Completed) , University of Windsor Thesis/Project Title: Design and Fabrication of E-nose Sensor Present Position: Associate Electrical Engineer at Vitesco Technologies

2018/5 - 2019/8
Principal Supervisor
Courtney Jones (Completed) , University of Windsor
Thesis/Project Title: Wireless Heart Rate Monitoring System
Present Position: Theme Development Engineer - Digital Experience at Ford Motor Company

Master's Thesis [n=16]

2025/1 - 2027/12
Principal Supervisor
Mohd Farhan Arshi (In Progress) , University of Windsor
Thesis/Project Title: Open Gate Transistor-base Sensor
Present Position: Graduate Student, Emadi Group

2023/9 - 2025/8
Co-Supervisor
Almiqdad Elzein (In Progress) , University of Windsor
Thesis/Project Title: Electronic noses and Machine Learning
Present Position: Graduate Student, Emadi Group

2022/9 - 2024/8
Principal Supervisor
Youssef Ezzat Youssef Elnemr (Completed) , University of Windsor
Thesis/Project Title: High sensitivity QCM for environmental monitoring
Present Position: Graduate Student, Emadi Group

2022/9 - 2024/12
Principal Supervisor
Aya Abu-Libdeh (Completed) , University of Windsor
Thesis/Project Title: Micromachines sensors withb protein receptors
Present Position: Unknown

2022/5 - 2024/8
Principal Supervisor
Gian Carlo Antony Raj (Completed) , University of Windsor
Thesis/Project Title: Polymer-based Micromachined Sensors
Present Position: Unknown

2022/5 - 2024/5
Principal Supervisor
Pavithra Munirathinam (Completed) , University of Windsor
Thesis/Project Title: Micromachined ultrasonic transducer
Present Position: PhD student, Emadi Group

2020/5 - 2021/4
Principal Supervisor
Mukesh Arvind Raju (Completed) , University of Windsor
Thesis/Project Title: MEMS Microchannel for Portable E-nose Systems
Present Position: Quality Engineer at CGI

2020/1 - 2023/4
Principal Supervisor
Yameema Babu Lopez (Completed) , University of Windsor
Thesis/Project Title: MEMS MicroPump for Portable e-nose Medical Detctor
Present Position: Unknown

2020/1 - 2021/12
Principal Supervisor
Calvin Love (Completed) , University of Windsor
Thesis/Project Title: Integrated Olfaction System for Autonomous Environmental Monitoring
Present Position: Technologist at University of Windsor

2019/9 - 2021/8
Principal Supervisor
Siddharth Swaminathan (Completed) , University of Windsor
Thesis/Project Title: Integrated QCM Sensor for e-nose mapping
Present Position: Research Engineer, Volta Energy

2019/9 - 2021/12
Principal Supervisor
Muhammad Umair Nathani (Completed) , University of Windsor
Thesis/Project Title: Design and Development of MEMS Capacitive Micromachined Sensors for Medical Applications
Present Position: PhD Student, Emadi Group

2018/9 - 2020/8
Principal Supervisor
Jenitha Antony Balasingam (Completed) , University of Windsor
Thesis/Project Title: Design and Fabrication of Piezo based Micromachined Ultrasonic Transducer
Present Position: Research Engineer, Sonoscope

2018/5 - 2019/12 Principal Supervisor	Aashish Joseph (Completed) , University of Windsor Thesis/Project Title: Design and Analysis of High-Frequency Quartz Crystal Microbalance Sensor Array with Concentric Electrodes and Dual Inverted Mesa Structure for Multiple Gas Detection Present Position: Unknown
2018/5 - 2019/12 Principal Supervisor	Niwit Aryal (Completed) , University of Windsor Thesis/Project Title: Design And Modeling Of An Electrostatically Actuated MEMS Micromirror For Light Detection And Ranging Present Position: Senior Software Developer at Enterprise Applications and Business Automation
2018/1 - 2019/12 Principal Supervisor	Haleh Nazemi (Completed) , University of Windsor Thesis/Project Title: A Miniaturized Chemical Vapor Detector Using MEMS Flexible Platform Present Position: PhD Student, Emadi Group
2017/7 - 2019/8 Co-Supervisor	Md. Iftekharul Islam (Completed) , University of Manitoba Thesis/Project Title: Air coupled ultrasonic transducers for imaging applications Present Position: PhD Student at Université de Sherbrooke

Doctorate [n=4]

2024/9 - 2028/8 Principal Supervisor	Pavithra Munirathinam (In Progress) , University of Windsor Thesis/Project Title: Multiple moving micromachined transducers for medical imaging application Present Position: Graduate Student, Emadi Group
2021/5 - 2025/4 Principal Supervisor	Yumna Birjis (In Progress) , University of Windsor Thesis/Project Title: Design and Fabrication of MEMS Micromachined Piezoelectric Transducers Present Position: Graduate Student, Emadi Group
2020/9 - 2025/4 Principal Supervisor	Haleh Nazemi (Completed) , University of Windsor Thesis/Project Title: Development of Novel Boundary-Configured Capacitive Gas Sensors Using MEMS Platform Present Position: PDF, Emadi Group
2017/7 - 2022/10 Co-Supervisor	Mayank Thacker (Completed) , University of Manitoba Thesis/Project Title: MEMS Ultrasonic Transducers Present Position: Assistant Professor, IIIT, Nagpur

Post-doctorate [n=5]

2025/8 - 2026/8 Principal Supervisor	Souvik Bag (In Progress) , University of Windsor Thesis/Project Title: Chemical sensor arrays Present Position: Post doctoral fellow, Emadi's group, University of Windsor
2025/5 - 2028/4 Principal Supervisor	Haleh Nazemi (In Progress) , University of Windsor Thesis/Project Title: Chemical Sensors Present Position: PDF, Emadi Group
2022/1 - 2024/12 Co-Supervisor	Jesse Marangoni (Completed) , University of Windsor Thesis/Project Title: Smart sensor material design for biomedical applications Present Position: Research Assistant
2019/12 - 2020/6 Principal Supervisor	Kenson Ambrose (Completed) , University of Windsor Thesis/Project Title: Sensing Material Design for Autonomous Smart Sensor Systems Present Position: Scientist at Solid State Pharma

2018/10 - 2019/6 Principal Supervisor	Jaewoo Park (Completed) , University of Windsor Thesis/Project Title: MEMS-based electronic nose system for medical applications Present Position: Field Service Specialist at Carl Zeiss

Research Associate [n=9]

2024/3 - 2024/9 Principal Supervisor	Bruce Ye (Completed) , University of Windsor Thesis/Project Title: Micro sensor arrays Present Position: Undergraduate Student, Emadi Group
2022/5 - 2022/8 Principal Supervisor	Ehsan Ur Rahman Mohammed (Completed) , University of Windsor Thesis/Project Title: Smart Sensor Arrays in Complex Environment Present Position: PhD Student, University of Western Ontario
2022/1 - 2022/9 Principal Supervisor	Matthew Santos (Completed) , University of Windsor Thesis/Project Title: Integrated smart sensors Present Position: Graduate Student, Emadi group
2021/9 - 2022/12 Principal Supervisor	Siddharth Swaminathan (Completed) , University of Windsor Thesis/Project Title: Development of e-nose sensor system Present Position: Research Engineer, Volta Energy
2021/9 - 2021/12 Principal Supervisor	Eman El-Masri (Completed) , University of Windsor Thesis/Project Title: Design and fabrication of an integrated smart sensor system Present Position: Associate Electrical Engineer at Vitesco Technologies
2020/9 - 2020/12 Principal Supervisor	Jenitha Antony Balasingam (Completed) , University of Windsor Thesis/Project Title: Test and Characterization of Piezo-based Micromachined Transducers Present Position: Research Engineer, Sonoscope
2020/1 - 2020/8 Principal Supervisor	Haleh Nazemi (Completed) , University of Windsor Thesis/Project Title: MEMS Mass Sensors for Medical Applications Present Position: PhD, Emadi Group
2019/9 - 2019/12 Principal Supervisor	Calvin Love (Completed) , University of Windsor Thesis/Project Title: Design and fabrication of e-nose system for greenhouse application Present Position: Technologist, University of Windsor
2019/5 - 2019/8 Principal Supervisor	Rima Butrus (Completed) , University of Windsor Thesis/Project Title: MEMS Transducers Present Position: Project Coordinator, Sterling Ridge Infrastructure

Event Administration

2025/5 - 2026/12	Track Chair, Biomedical and Health Informatics Symposium, Conference, 2026/5 - 2026/5
2025/1 - 2025/12	Co-Chair Women in Sensors, IEEE Sensors Conference, Conference, 2025/10 - 2025/10
2024/1 - 2024/9	Track Chair, The IEEE Canadian Conference on Electrical and Computer Engineering, Conference, 2024/8 - 2024/8
2022/3 - 2022/11	Organizer, Health Research Conference, WE-SPARK, Conference, 2022/3 - 2022/11
2021/1 - 2021/8	Track Chair, IEEE MIDWEST Symposium on Circuits and Systems 2021, Conference, 2021/8 - 2021/8
2019/11 - 2020/11	Judge, 4th and 5th Biennial International Cancer Research Conference, Conference, 2019/11 - 2020/11

2020/1 - 2020/3	Organizer, Soldering workshop series for undergraduate and graduate students, Workshop, 2020/1 - 2020/3
2020/1 - 2020/3	Organizer, COMSOL training workshop series for undergraduate, graduate and MEng students with the support of CMC Microsystems and the office of Dean of Engineering, Workshop, 2020/1 - 2020/3
2019/12 - 2019/12	Judge, Undergraduate research competition, Workshop, 2019/12 - 2019/12
2019/9 - 2019/12	Undergraduate student evaluator, CURE course organized by Faculty of Science, Course, 2019/12 - 2019/12
2019/11 - 2019/11	Facilitator, OnWIE session, McMaster University, Workshop, 2019/11 - 2019/11
2019/2 - 2019/2	Facilitator and Faculty Representative, University of Windsor Community Consultation, Workshop, 2019/2 - 2019/2

Editorial Activities

2024/1 - 2025/12	Guest Editor, Journal of Sensors, Recent Advances in Low Cost Capacitive Sensors, Journal
2022/8 - 2023/7	Guest Editor, Journal of Sensors, Recent Applications of Sensors Fabrication and MEMS/ NEMS, Journal
2019/9 - 2021/12	Guest Editor, Journal of Micromachines – Micromachined Gas Sensors, Journal

Organizational Review Activities

2017/7 - 2028/9	Reviewer, Journal Reviewer for Journals of Sensors; Journal of Sensors and Actuators: A. Physical; Journal of Transactions on Ultrasonics, Ferroelectrics, and Frequency Control; IEEE Electron Device Letters; Journal of Nanoengineering and Nanosystems; Journal of Micromachines; Journal of Microsystem Technologies; Journal of Materials.
2024/9 - 2026/8	Co-Chair, Natural Sciences and Engineering Research Council of Canada (NSERC) Co-chair, Electrical and Computer Engineering Discovery Grant Evaluation Group
2023/9 - 2026/8	Member of Evaluation Group, Natural Sciences and Engineering Research Council of Canada (NSERC) Member of the Electrical and Computer Engineering Evaluation Group
2024/9 - 2024/11	Member of Evaluation Group, Science and Technology Facilities Council (STFC) Panelist UK-Canada quantum for science research collaborations – UKRI
2019/10 - 2021/5	Reviewer, Canadian Microsystems (CMC) Proposal Reviewer for Canadian Microsystems (CMC)
2019/12 - 2021/1	Reviewer, Natural Sciences and Engineering Research Council of Canada (NSERC) Reviewer for NSERC Discovery Grant
2019/7 - 2021/1	External Reviewer, Mathematics of Info Tech & Complex Systems Academic Reviewer

Knowledge and Technology Translation

2019/9 - 2019/9
Panelist, Policy/Regulation Development
Target Stakeholder: Academic Personnel
Outcome / Deliverable: Community Engagement
Activity Description: Research data management consultation

2019/4 - 2019/4
Presenter, Community Engagement
Target Stakeholder: General Public
Outcome / Deliverable: Research Update, Community Engagement in Biomedical Engineering
Activity Description: "Where Canada begins" promotion video. Generating public awareness to promote opportunities and potentials in the Windsor-Essex area.

2019/4 - 2019/4
Article, Community Engagement
Target Stakeholder: General Public
Outcome / Deliverable: Research Update, Community Engagement in Biomedical Engineering
Activity Description: Windsor Cancer Research Group Snapshot

2019/3 - 2019/3
Research, Community Engagement
Target Stakeholder: General Public
Outcome / Deliverable: Community Engagement in Biomedical Engineering
Activity Description: Article in the Windsor Star, "University research turns small gains into big impact", discussing the significance of current research in medical field

2019/3 - 2019/3
Article, Community Engagement
Target Stakeholder: General Public
Outcome / Deliverable: Community Engagement in Biomedical Engineering
Activity Description: Article "Saving lives with nanotechnology" Knowledge transfer and community engagement in Prospective, Windsor-Essex Economic Development

International Collaboration Activities

2023/7 - 2024/6
Researcher and collaborator,, Denmark
Investigating candidate MEMS sensors for use in renewable energy and energy storage systems

Committee Memberships

2025/1
Chair, Department of Electrical and Computer Engineering Graduate Program Coordinator, University of Windsor

2024/7
Committee Member, Agriculture UWindsor Executive Committee, University of Windsor

2024/1
Committee Member, Research Institute Reviewer Committee, Office or Research and Innovation Services, University of Windsor

2024/1
Committee Member, Renew Tenure and Promotion Committee, University of Windsor

2023/9
Committee Member, Appointment and Hiring Committee, University of Windsor

2022/7
Committee Member, WE-SPARK Innovation Ambassadors, WE-SPARK

2022/3
Committee Member, Outstanding Scholars Advisory Group, Engineering Representative, University of Windsor

2021/10
Committee Member, Search Committee, Associate Dean Academic, University of Windsor

2021/9	Committee Member, FABrIC's MEMS Advisory Committee, Canadian Microsystems (CMC)
2020/9	Committee Member, University of Windsor Research Data Management Advisory Group, University of Windsor
2019/9	Committee Member, Canadian Cancer Society Research Information Outreach Team, University of Windsor
2017/7	Committee Member, Ph.D. Thesis Committee Member, University of Windsor Internal, Outside Program Reader, and External Examiner
2017/7	Chair, Graduate Seminars, University of Windsor
2017/7	Committee Member, M.A.Sc. Thesis Committee Member, University of Windsor Internal and Outside Program Reader
2021/1 - 2021/12	Chair, Graduate Academic Advisor, University of Windsor
2020/4 - 2021/7	Committee Member, Dean of Engineering Hiring Committee, University of Windsor
2018/1 - 2021/4	Committee Member, Appointment and Hiring Committee, University of Windsor
2018/1 - 2020/12	Committee Member, Graduate Committee, University of Windsor
2019/8 - 2019/12	Committee Member, Department of Electrical Engineering Technician Hiring, University of Windsor
2019/5 - 2019/10	Committee Member, Technical Committee Member, IEEE Sensors Conference, IEEE Sensors
2018/11 - 2019/10	Chair, Delegate Graduate Chair, Department of Electrical and Computer Engineering, University of Windsor

Other Memberships

2017/7	Profesional Engineer, Professional Engineer of Ontario
2017/7	Member, Windsor Cancer Research Group
2013/1	Professional Engineer, Engineers Geoscientists Manitoba
2006/1	Senior Member, Institute of Electrical and Electronics Engineers, IEEE

Presentations

1. *Y. Birjis. (2025). Advancing Early Cancer Detection: A Novel Dual-Frequency Ultrasound Technology for Enhanced Imaging. WE-SPARK Conference, Windsor, Canada
   Main Audience: Knowledge User
   Invited?: No, Keynote?: No
2. (2025). An autonomous preemptive intervention technology for greenhouse application.2025 Ontario Fruit and Vegetable Convention, Niagara Fall, Canada
   Main Audience: Knowledge User
   Invited?: Yes, Keynote?: No
3. *A. Abu-Libdeh and A. Emadi. (2024). State-of-the-art Transistor Design Approach for Enhanced Sensing Performance. CMC Texpo, Toronto, Canada
   Main Audience: Knowledge User
   Invited?: No, Keynote?: No

4. (2023). Empowering Agriculture Through Low-Cost & Real-Time Monitoring and Early Pest Detection. Canadian Greenhouse Conference, Niagara Fall, Canada
   Main Audience: Knowledge User
   Invited?: Yes, Keynote?: No
5. (2023). Multi-frequency Piezoelectric Micromachined Ultrasonic transducers for early skin cancer detection. WE-SPARK 2023 Health Research Conference, Windsor, Canada
   Main Audience: Knowledge User
   Invited?: No, Keynote?: No
6. *G. C. Raj, *A. Abu-Libdeh, N. Zhang, and A. Emadi. (2023). Electronic Nose for Gas Sensing Applications in Autonomous Vehicles. UWill Discover Conference, Windsor, Canada
   Invited?: No, Keynote?: No
7. (2023). Integrated eNose platform for real-time greenhouse pest detection. Ontario Fruit and Vegetable Convention, Niagara Fall, Canada
   Invited?: No, Keynote?: No
8. (2022). Electronic nose technology for pest and disease detection. Canadian Greenhouse Conference, Niagara Fall, Canada
   Invited?: Yes, Keynote?: No
9. (2022). An electronic nose technology for greenhouse pest detection. Tomato Brown Rugose Fruit Virus Research Symposium, Toronto, Canada
   Invited?: No, Keynote?: No
10. *H. Nazemi, *S. Swaminathan, *G.C. Antony Raj, and A. Emadi. (2022). Integrated micromachined sensors. Canadian Greenhouse Conference, Niagara Fall, Canada
    Invited?: No, Keynote?: No
11. (2022). Pivotal women. Women's Enterprise Training Inc. of Windsor SEAT (Science, Engineering, Artistry and Technology) program, Windsor, Canada
    Invited?: Yes, Keynote?: Yes
12. (2021). Autonomous electronic nose (e-Nose) systems, opportunities and challenges. Ontario Greenhouse Vegetable Growers Webinar, WINDSOR, Canada
    Main Audience: Knowledge User
    Invited?: Yes, Keynote?: Yes

Broadcast Interviews

2024/11/22 - 2024/11/22	University of Windsor shaping the future of sustainable food production, Excellence In Research and Innovation, The Globe and Mail

Text Interviews

2024/04/01	Pioneering the way in which Illnesses are detected, University of Windsor, Engineering Magazine
2023/09/21	Exploration at the frontiers of discovery, University of Windsor, Daily News
2023/06/26	Faculty Spotlight, Centre for Teaching and Learning
2023/03/15	UWindsor participating in future pandemic research, Windsor News Today
2023/03/14	Tackling future pandemics, CBC News
2022/06/13	e-nose system for greenhouse applications, Greenhouse Grower magazine
2022/04/11	Sniffing out greenhouse pests, Agricultural Adaptation Council news article

2022/03/01	Innovative electronic nose technology could make scouting for pests in the greenhouse easier and more accurate, Ontario Greenhouse vegetable Growers news article
2019/04/01	MEMS and Biomedical Engineering, Interview with Economic Development Corporation
2019/04/01	Saving Lives with Nanotechnology, Interview with Windsor Star

Publications

Journal Articles

1. Y. Birjis*, H. Nazemi*, J. Park*, J. Antony Balasingam*, and A. Emadi. (2025). Design, fabrication, and characterization of dual-electrode piezoelectric micromachined ultrasonic transducer (PMUT) geometries. IEEE Sensors. 25(14)
   Published
   Refereed?: Yes, Open Access?: No
2. *P. Munirathinam, *M. F. Arshi, *H. Nazemi, G. *C. Antony Raj, and A. Emadi. (2025). Polymer based chemicapacitive hybrid sensor array for improved selectivity in e-Nose systems. Journal of Sensors. 25(13)
   Published
   Refereed?: Yes, Open Access?: Yes
3. *H. Nazemi, *M. Schmbri, *Y. Elnemr, A. Emadi. (2025). Development and analysis of microbridge resonators for reduced pull-in voltage and preserved resonant frequency. Journal of Sensors and Sensor Systems. 1: 1.
   Submitted
   Refereed?: Yes
4. *H. Nazemi, *Y. Birjis, *P. Munirathinam, *M. F. Arshi, and A. Emadi. (2025). Distribution of the clamped boundary and its impact on resonator performance. IEEE Sensors Letter.
   Submitted
   Refereed?: Yes, Open Access?: No
5. *A. Abu-Libdeh, *Y. Elnemr, *G. C. Antony Raj, and A. Emadi. (2024). QCM electrode configurations for enhanced mass distribution and sensitivity. IEEE Sensors. 24(23): 38843-38850.
   Published
   Refereed?: Yes, Open Access?: No
6. *A. Gignac, *A. Shamsuddin, *U. Nathani, *P. Munirathinam, *H. Nazemi, and A. Emadi. (2024). Expanding limit of detection and increasing operating resonant frequency via larger anchor widths for capacitive micromachined resonator-based mass sensors. IEEE Sensor Letter. 8(9): 1.
   Published
   Refereed?: Yes, Open Access?: No
7. *B. Ye, *H. Nazemi, *P. Munirathinam, D. A. Buchanan, and A. Emadi. (2024). Effect of middle membrane dimensions on dynamic control range in dual membrane capacitive micromachined ultrasonic transducers. IEEE Access. 12: 156412-156419.
   Published
   Refereed?: Yes, Open Access?: Yes
8. *H. Nazemi, R. Graham, B. Ye, D. Damiani, and A. Emadi. (2024). Design and fabrication of micro resonator with bilateral Concentric boundaries.IEEE Sensor Letter. 8(7): 1.
   Published
   Refereed?: Yes, Open Access?: No

9. *H. Nazemi, R. Graham, *A. Abu-Libdeh, *G. C. Antony Raj, D. Damiani, and A. Emadi. (2024). Micromachined capacitive sensor with configured boundaries: approach, design and fabrication. IEEE Transactions on Electron Devices. 71(12): 7758-7764.
Published
Refereed?: Yes, Open Access?: No

10. P. Munirathinam*, H.* Nazemi, M. U. Nathani*, G. C. Antony Raj*, Y. E. Y. Elnemr*, D. A. Buchanan, and A. Emadi. (2024). Multiple moving membrane capacitive micromachined ultrasonic transducer with dynamic control provision of effective cavity height. IEEE Sensors. 24(5): 5852-5859.
Published
Refereed?: Yes, Open Access?: No

11. Y. Elnemr*, A. Abu-Libdeh*, G. C. Antony Raj*, Y. Birjis*, H. Nazemi*, P. Munirathinam*, and A. Emadi. (2023). Multi-transduction-mechanism technology, an emerging approach to enhance sensor performance. Sensors. 23(9): 1.
Published
Refereed?: Yes, Open Access?: Yes

12. *S. Swaminathan, and A. Emadi. (2023). Design and analysis of a novel quartz crystal microbalance utilizing distributed mass loading area for improved sensitivity. IEEE Sensors. 23(6): 5643 - 5649.
Published
Refereed?: Yes, Open Access?: No

13. J. M. Marangoni*, K.S. Ng, and A. Emadi. (2023). Strategies for the voltametric detection of loop-mediated isothermal amplification. Micromachines, Electrochemical Sensors in Biological Applications. 14(472): 1.
Published
Refereed?: Yes, Open Access?: Yes

14. *Y. Birjis, *S. Swaminathan, *H. Nazemi, *P. Munirathinam, *G. C. Antony Raj, *A. Abu-Libdeh and A. Emadi. (2022). Piezoelectric micromachined ultrasonic transducers (PMUTs): performance metrics, advancements and applications. Smart Sensors Based on Microelectronics and MEMS Technologies. 22(23): 1.
Published
Refereed?: Yes, Open Access?: Yes

15. *C. Love, *H. Nazemi, *E. El-Masri, *K. Mahzoon, *S. Swaminathan, and A. Emadi. (2022). Design and analysis of a unique electrode configuration targeting fringing field utilization for improved chemicapacitor sensitivity. IEEE Sensors. 22(21): 20186 – 20192.
Published
Refereed?: Yes, Open Access?: No

16. *M. U. Nathani, *H. Nazemi, *C. Love, *Y. Babu Lopez, *S. Swaminathan, and A. Emadi. (2021). Capacitive based micromachined resonators for low level mass detection. Micromachines. 12(1): 13.
Published
Refereed?: Yes, Open Access?: Yes

17. *M. Thacker, A. Emadi, D. A. Buchanan. (2021). Design, development and characterization of a low frequency CMUT based anemometer. IEEE Access. 9: 127735-127741.
Published
Refereed?: Yes, Open Access?: Yes

18. *C. Love, *H. Nazemi, *E. El-Masri, *K. Ambrose, M. S. Freund, and A. Emadi. (2021). A review on advanced sensing materials for agricultural gas sensors. Sensors. 21(10): 1.
Published
Refereed?: Yes, Open Access?: Yes

19. *A. Joseph and A. Emadi. (2020). A high frequency dual inverted mesa QCM sensor array with concentric electrodes. IEEE Access. 8: 92669 - 92676.
Published
Refereed?: Yes, Open Access?: Yes

20. *N. Aryal and A. Emadi. (2020). A method to enhance stroke level of a MEMS micromirror with repulsive electrostatic force. Micromachines. 11(4): 401.
Published
Refereed?: Yes, Open Access?: Yes

21. *H. Nazemi, *J. Antony Balasingam, *S. Swaminathan, *K. Ambrose, *M. U. Nathani, *T. Ahmadi, *Y.Babu lopez, and A. Emadi. (2020). Mass sensors based on capacitive and piezoelectric micromachined ultrasonic transducers - CMUT and PMUT. Sensors. 20(7): 2010.
Published
Refereed?: Yes, Open Access?: Yes

22. *H. Nazemi, *A. Joseph, *J. Park and A. Emadi. (2019). Advanced micro and nano gas sensor technology: a review. Sensors. 19(6): 1285.
Published
Refereed?: Yes, Open Access?: Yes

Book Chapters

1. *Y. Birjis, *H. Nazemi, *P. Munirathinam, *A. Shamsuddin, B. T. Khuri-Yakub, A. S. Ergun, O. Oralkan, G. G. Yaralioglu, and A. Emadi. (2025). Chemical and biological systems, ultrasonic transduction. Yogesh Gianchandani. Comprehensive Microsystems. 2: 517-570.
Published, Elsevier
Refereed?: Yes

2. *J. Antony Balasingam, *S. Swaminathan, *H. Nazemi, *C. Love, *Y. Birjis, and A. Emadi. (2023). Chemical sensors: acoustic gas sensors. R. Narayan. Encyclopedia of Sensors and Biosensors. (1): 209-225.
Published, Elsevier
Refereed?: Yes

3. *E. El Masri, *A. Abu Libdeh, *H. Nazemi, P. Olla, and A. Emadi. (2022). Sensors and wearables electronics in healthcare. P. Olla, and J. Tan. Digital Health Care: Perspectives, Applications, and Cases. 1: 173-188.
Published, Jones & Bartlett Learning
Refereed?: Yes

4. *C. Love, *H. Nazemi, *E. El-Masri, and A. Emadi. (2021). Materials for agricultural gas sensors. Encyclopedia. Encyclopedia. Materials Science, Characterization & Testing. : 1-5.
Published, Encyclopedia
Refereed?: Yes

Conference Publications

1. *Y. Birjis, *P. Munirathinam, *H. Nazemi, and A. Emadi. (2025). Electromechanical Characterization of Dual-Electrode Circular PMUTs with Comparative Analysis of Top Electrode Layouts. IEEE Sensors, Paper
Submitted
Refereed?: Yes, Invited?: No

2. *M. F. Arshi, *H. Nazemi, and A. Emadi. (2025). Impact of Topology on Organic Field-Effect Transistor for Sensing Applications. IEEE Sensors,
Paper
Submitted
Refereed?: Yes, Invited?: No

3. *P. Munirathinam, *Y. Birjis, *H. Nazemi, and A. Emadi. (2025). Effect of Bottom Electrode Dimension on Performance Characteristics of Multiple Moving Membrane Capacitive Micromachined Ultrasonic Transducer. IEEE Sensors,
Paper
Submitted
Refereed?: Yes, Invited?: No

4. *A. Elzein, *M. Hassanzadeh, and A. Emadi. (2025). Combining Image Transformations to Solve Unseen Time Series Classification Problems. International Conference on Future Machine Learning and Data Science,
Paper
Submitted
Refereed?: Yes, Invited?: No

5. *H. Nazemi, R. Graham, B. Ye, D. Damiani, A. Emadi. (2024). Design and Fabrication of Micro Resonator with Bilateral Concentric Boundaries. IEEE Sensors Conference, Kobe, Japan
Paper
Published
Refereed?: Yes, Invited?: No

6. *A. Gignac, *A. Shamsuddin, *U. Nathani, *P. Munirathinam, *H. Nazemi, and A. Emadi. (2024). Expanding limit of letection via larger anchor widths for capacitive micromachined resonator-based mass sensors. IEEE Sensors Conference,
Paper
Published
Refereed?: Yes, Invited?: No

7. *A. Elzein, M. Hassanzadeh, and A. Emadi. (2024). Learning Hyper-Parameters of Image Transformations for Time Series Classification. IEEE International Conference on Future Machine Learning and Data Science (FMLDS), Sydney, Australia
Conference Date: 2024/11
Paper
Published
Refereed?: Yes, Invited?: No

8. *A. Abu-Libdeh, *Y Birjis, and A. Emadi. (2024). Semiconductor Modeling of MOSFET Gate Topology for Improved FET-based Sensor Transconductance. COMSOL COnference, Boston, United States of America
Conference Date: 2024/10
Paper
Published
Refereed?: Yes, Invited?: No

9. *Y. Elnemr, *H. Nazemi, and A. Emadi. (2024). Polymer-coated QCM sensor leveraging energy Trapping effect for enhanced detection of volatile organic compounds. 36th EuroSensors Conference, Debrecen, Hungary
Conference Date: 2024/9
Paper
Published
Refereed?: Yes, Invited?: No

10. *H. Nazemi, *Y. Elnemr, and A. Emadi. (2024). Microbridge resonators: reducing pull-in voltage with preserving resonant frequency. 36th EuroSensors Conference, Debrecen, Hungary
Conference Date: 2024/9
Paper
Published
Refereed?: Yes, Invited?: No

11. *G. C. Antony Raj, *Y. Elnemr, *P. Munirathinam, *Y. Birjis, *C. Love, A. Emadi. (2023). Polymer-Based Virtual Sensor Array Leveraging Fringing Field Capacitance for VOC Detection. IEEE Sensors, Vienna, Austria
Conference Date: 2023/10
Paper
Published
Refereed?: Yes, Invited?: No

12. *A. Abu-Libdeh, *D. Strelkova, M. Santos*, and A. Emadi. (2022). Design of a VOC Concentrator Automated Test Apparatus for Breath Biomarker Detection. 2022 Health Research Conference, Windsor, Canada
Conference Date: 2022/11
Poster
Published
Refereed?: Yes, Invited?: No

13. *J. Marangoni, A. Zutic, S. Lam Wong, A.Emadi, K. Ng. (2022). A switchable affinity streptavidin mutant for purification and biosensor applications. 2022 Health Research Conference, Windsor, Canada
Conference Date: 2022/11
Poster
Published
Refereed?: Yes, Invited?: No

14. P. Olla, and A. Emadi. (2022). Volatolomics of breath as an emerging frontier for wellness screening in autonomous vehicles. The Eye, The Brain, and the Auto, Detroit, United States of America
Conference Date: 2022/10
Paper
Published
Refereed?: Yes, Invited?: Yes

15. *M. A. Raju, O. J. Jianu, and A. Emadi. (2021). Design of a regulated micromachined air-sniffer using thermal transpiration effect for e-nose applications. Canadian Society for Mechanical Engineering International Congress,
Conference Date: 2021/6
Paper
Published
Refereed?: Yes, Invited?: No

16. *S. Swaminathan and A. Emadi. (2021). Mass sensitivity analysis of a newly developed quartz crystal microbalance with ring-dot electrode configuration and reduced mass loading area. International Conference on Micromachines and Applications,
Conference Date: 2021/4
Paper
Published
Refereed?: Yes, Invited?: No

17. *C. Love and A. Emadi. (2020). E-nose system miniaturization using impedance analysis and advanced micro/nano fabrication. 5th Biennial International Cancer Research Conference, Windsor, Canada
Conference Date: 2020/11
Poster
Published
Refereed?: Yes, Invited?: No

18. *J. Antony Balasingam, *S. Swaminathan, and A. Emadi. (2020). A low-frequency piezoelectric micromachined ultrasonic transducer based on multi-user MEMS process with enhanced output pressure. IEEE International Ultrasonics Symposium, Las Vegas, United States of America
Conference Date: 2020/9
Paper
Published
Refereed?: Yes, Invited?: No

19. *R. Butrus, *H. Nazemi, *M. U. Nathani, *R. Karmarkar, D. A. Buchanan, and A. Emadi. (2020). A two-port multiple moving membrane capacitive micromachined ultrasonic transducer with reduced effective height and enhanced sensitivity. IEEE International Ultrasonics Symposium, Las Vegas, United States of America
Conference Date: 2020/9
Paper
Published
Refereed?: Yes, Invited?: No

20. *H. Nazemi and A. Emadi. (2019). A new advanced analytical model for bi-layer circular CMUT-based gas sensors. IEEE Sensors, Montreal, Canada
Conference Date: 2019/10
Paper
Published
Refereed?: Yes, Invited?: No

21. *A. Joseph and A. Emadi. (2019). Design and optimization of a multichannel quartz crystal microbalance sensor array for multi target gas detection. IEEE Sensors, Montreal, Canada
Conference Date: 2019/10
Paper
Published
Refereed?: Yes, Invited?: No

22. *N. Aryal and A. Emadi. (2019). Novel method to improve stroke of electrostatically actuated MEMS micromirror. SPIE Optical Engineering and Applications Symposium, San Diego, United States of America
Conference Date: 2019/8
Paper
Published
Refereed?: Yes, Invited?: No

Intellectual Property

Patents

1. A New Transistor-Based Technology for Enhanced Performance including Current Response. United States of America. 63/647835. 2024/05/15.
Patent Status: Pending
Inventors: A. Abu-Libdeh and A. Emadi

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