



**National Institute of Technology, Tiruchirappalli:  
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7. Employment Profile

Job Title	Employer	From	To
Professor	NIT-Trichy	March 2018	Till Date
Associate Professor	NIT-Trichy	31 <sup>st</sup> July 2011	March 2018
Lecturer (S.G)/Assistant Professor	NIT-Trichy	1 <sup>st</sup> July, 2009	30 <sup>th</sup> July, 2011
Lecturer (Senior Scale)	NIT-Trichy	17 <sup>th</sup> May, 2004	30 <sup>th</sup> June, 2009
Lecturer	NIT-Trichy	17 <sup>th</sup> ,May 1999	16 <sup>th</sup> May 2004
Lecturer & Head of Department, Instrumentation and Control Engineering	Sethu Institute of Technology, Madurai	Sep 1995	15 <sup>th</sup> ,May 1999
Senior Technical Officer	Madras Institute of Technology, Chennai.	June 1993	May 1994
Teaching Research Fellow	Madras Institute of Technology, Chennai.	Feb 1990	June 1993

8. Academic Qualifications (From Highest Degree to High School):

Examination	Board / University	Year	Division/ Grade	Subjects
Ph.D.	NIT-Trichy	2009		Instrumentation
M.E.	Madras Institute of Technology, Chennai	1992		Instrumentation Engineering
B.E.	Govt. College of Technology, Coimbatore	1989		Instrumentation and Control Engineering

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### 9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/Centre/Institution	From	To
Presiding Officer	ICC	2021	Till date
ISRO-STIC Coordinator	NITT-ISRO-STIC	2019	Till date
Head of the Department	NIT-Trichy	November 2019	15 <sup>th</sup> November, 2021
Faculty Advisor	G.E.Co Club August	2014	
Member	Member, Legal Cell, NIT-Trichy	December 2010	December 2012
Associate Dean	Institute Development	October 2012	April 2013
Warden	Ladies Hostel	December 2010	December 2012
Department Coordinator	Central Library	2004	2007
Faculty advisor	ISA REC student section	2000	2006
Member	Hospital Committee in Inter Institute Sports Meet & Various Institute Sports Meet		
Member	Purchase Committee (for the purchase of DG set) Member Institute Legal		

### 10. Academic/Administrative Responsibilities outside the University

Position	Institution	From	To
Member of BOS	Kamaraj College of Engineering & Technology	2021	Till date
Member of BOS	Kumaraguru College of Technology, Coimbatore	2021	Till date
HOD	Department of Instrumentation and Control Engineering, Sethu Institute of Technology, Madurai	September 1995	May 1999
Member of Syllabus Revision Committee	Madurai Kamaraj University	September 1995	May 1999
Selection committee member of the recruitment board	Sethu Institute of Technology, Madurai	September 1995	May 1999
Prepared laboratory manuals for Instrumentation and Process control lab	Sethu Institute of Technology, Madurai	September 1995	May 1999

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### 11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization
2010	Best Poster Award (ISSS International Conference)	ISSS

### 12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)
2001	Young Scientist Fellowship	Tamil Nadu State Council for Science and Technology	Sep 2001	Dec 2001

### 13. Details of Academic Work

#### (i) Curriculum Development

**COURSES:** Involved in formulating, updating and presenting the syllabus of following theory and laboratory courses in the Board of Studies (BoS) meetings held in the department since the 2000.

- Sensors and Transducers
- Industrial Instrumentation – I
- Industrial Instrumentation – II
- MEMS and Nanotechnology
- Micro System Design
- Biomedical Instrumentation
- Logic and Distributed Control Systems
- Process Control
- Smart Materials and Systems
- Sensor Networks
- Instrumentation and Control (for B.Tech MME Branch)
- Sensors and Transducers Laboratory
- Instrumentation Laboratory
- Process Control Laboratory

**LABORATORY DEVELOPMENT:** Involved in establishing the facilities, designing the experiments for UG and PG students in the following laboratories:

- Sensors and Transducers Laboratory
- Instrumentation Laboratory
- Process Control Laboratory

#### (ii) Courses taught at Postgraduate and Undergraduate levels

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### **For B.Tech - Instrumentation & Control Engineering**

1. Product Design and Development with practical part
2. Biomedical Instrumentation
3. MEMS and Nanotechnology
4. Sensors and Transducers
5. Industrial Instrumentation-I
6. Industrial Instrumentation-II
7. Logic and Distributed Control Systems
8. Instrumentation Systems
9. Instrumentation System Design
10. Process Control
11. Introduction to Instrumentation and Control Systems Engg.
12. Sensors and Transducers Laboratory
13. Instrumentation Laboratory
14. Process Control Laboratory

### **For B.Tech – Electrical and Electronics Engineering and Materials and Metallurgical Engineering**

1. Instrumentation Systems
2. Instrumentation and Control

### **For M.Tech – Industrial Automation**

1. Measurements in Manufacturing and Process Industries

### **For M.Tech - Process Control and Instrumentation**

1. Instrumentation
2. MEMS
3. Logic and Distributed Control Systems
4. Instrumentation System Design
5. Measurement Systems
6. Industrial Instrumentation
7. Instrumentation and Control Laboratory

### **For Ph .D – Students**

1. MEMS part in Research Methodology course.
- (iii) Projects guided at Postgraduate level

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<b>S.No</b>	<b>TITLE OF THE DISSERTATION</b>	<b>NAME OF THE STUDENT</b>	<b>Year</b>
1	Design and Optimization of Fuzzy logic controller	G. Ramji	January 2002
2	Control of isothermal CSTR using neural networks	A. Srinivasan	January 2002
3	Generalized Predictive Control	Usha Rani	January 2002
4	Simulation of interface level control of three phase separators	Nizzamuddin	January 2003
5	Modeling and simulation of vibratory micro gyroscope.	J.Vijay	January 2004
6	Monitoring long term uterine contractions	M.Dhinesh	January 2004
7	Design and simulation of micro accelerometer.	J.Issac Samson	January 2003
8	Modeling and simulation of multiport RF switch.	J.Vijay	June 2004
9	Design and simulation of micro accelerometer.	J.Issac Samson	June 2004
10	Finite element modeling of a PVDFMOSFET based MEMS hydrophone.	Sumy Jose	June 2004
11	Design and simulation of micro machined silicon load cell	R. Revathi	Dec 2004
12	Real time control of inverted pendulum	N.Senthil Manoharan	Dec 2004
13	Design of MEMS devices using Interval analysis	Shanmughavalli	June 2005
14	Structural vibration control using quantitative feedback theory.	N. Senthil Manoharan	June 2005
15	Design, simulation and analysis of micro actuator for hard disk drive	P. Srinivasa Rao	June 2005
16	Design, simulation and analysis of capacitive micro machined ultrasonic transducer.	S.A.Anbalagan	June 2005
17	Design and simulation of micromechanical resonator.	P.Vetrivel	Jan 2006
18	Vibration control in electrorheological fluid actuated vehicle suspension system.	M. Indhumathy	Jan 2006
19	Control block simulator.	M.Indhumathy	June 2006
20.	Developing common intermediate form for PLC programming language.	P.Vetrivel	June 2006
21	Design and optimization of micro resonator.	A.Girija	June 2006
22.	Micro controller based pressure measurement system	Pawan	June 2006

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23.	Micro controller based temperature measurement System	I. Sharmila	June 2006
24	Design and analysis of micro differential pressure sensor	Rami Reddy	Dec 2007
25	Design and analysis of micro differential pressure sensor	Rami Reddy	June 2008
26.	Design and fabrication of micro accelerometer	T. Indhuja (Anna Univ, Chennai)	December 2010
27.	Design and simulation of dual mass resonant micro accelerometer	T. Indhuja (Anna Univ, Chennai)	May 2011
28	Breast cancer diagnosis using impedance spectroscopy	K. Harshavardhana Reddy	December 2010
29	Advanced control of HVAC systems	Dhanunjaya Davu	December 2010
30	Design of multi frequency current source for bio-impedance measurement	K. Harshavardhana Reddy	May 2011
31	A Robust model of predictive control design of HVAC system	Dhanunjaya Davu	May 2011
32	Design and simulation of digital logic gates using MEMS	Avasarala Venkata Sunil	December 2011
33	Signal averaging analysis of atrial repolarisation phase of electrocardiogram	N.Khaja Meeran	December 2011
34	Indication of left atrial enlargement and segmentation of heart sound using wavelets	N.Khaja Meeran	May 2012
35	Implementation of control for resonant sensor	Avasarala Venkata Sunil	May 2012
36	Piezoelectric MEMS shear-stress sensor for underwater flow measurements	Nevin Augustine	December 2013
37	Fabrication of thin film thermocouple for measuring temperature in a Gas turbine	Rakesh K.P	December 2013
38	A new resonant based method for the measurement of turbine blade tip clearance	Nevine Augustine	May 2014
39	Fabrication and calibration of thin film thermocouple for gas turbine	Rakesh K.P	May 2014
40	Rotor blade tip clearance measurement in gas turbines	Vivek A	December 2014
41	Realization of MEMS based seismometer for lunar applications	M. Narendra Reddy	December 2014
42	Controller design for piezo actuated pump	G Sruthi	December 2015
43	Source localization using acoustic vector sensor	Sreedevi Gopinath	December 2015

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44	Development of tip clearance measurement system for gas turbines	Vivek A	May 2015
45	Design of closed loop micro accelerometer for performance improvement	G Sruthi	May 2016
46	Modelling and Control of Hydraulic Excavator	Swapnil Dhane	June 2022
47	Design of Intraocular Pressure Sensor	Rakesh Kumar Sharma	June 2022

(iv) Other contribution(s)

14. Details of Major R&D Projects

Title of Project	Funding Agency	Duration		Status
		From	To	Ongoing/ Completed
On-line oil debris monitoring sensor	Department of Science & Technology under DDP programme	2021	2024	Ongoing
“Development of Novel Sensing Device for Evaluating Sensory Impairment on Diabetic Foot to Detect Ulcer Risk Areas at Early Stage”	DST-TIDE	2021		Ongoing
Development of long term sustainable 3D printed gahnite-glass cover sheet to attain efficient polycrystalline solar cell performance	SERB	2021		Ongoing
Self-Powered Sensor System for Condition Monitoring of	Scheme for Promotion of Academic and	2018		Ongoing



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Nuclear Waste Packages	Research Collaboration			
Design of Spin based Piezoelectric Energy Harvester with Storage System	Armament Research and Development Establishment	2017	2019	Completed
Sensor Development for the Detection of Oil Debris in Gas Turbine Applications	Gas Turbine Research Establishment (GTRE), Bangalore	2016	2018	Completed
Design, Fabrication and testing of Meso and Micro Scale Resonant sensors with electronics	SERB DST, New Delhi	2013	2016	Completed
Establishment of New National MEMS Design Center	National Programme on Micro and Smart Systems (NPMASS)	2009	2010	Completed
Micro Pressure Sensor for Fuel level Indicator in Automobile	FTD Solutions Private Ltd, Singapore	2008	2009	Completed
Micro Resonating Beam Differential Pressure Sensor: Simulation and Electronic Interface Design	ISRO, Bangalore	2007	2008	Completed
Development of Mechatronics laboratory modules	MHRD	2003	2005	Completed
Design and Fabrication Micro Devices	National Program on Smart Materials (NPSM)	2002	2007	Completed

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15. Number of PhDs guided

Name of the PhD Scholar	Title of PhD Thesis	Role(Supervisor/ Co-Supervisor)	Year of Award
Ms. M. Shanmugavalli	Modeling and Experimental Investigation of Coriolis Flowmeter Using Piezoelectric Sensing and Actuation	Co-Supervisor	2011
Mr. J. Sivaraman	Investigations on the performance of a modified limb lead ECG recording system for the study of atrial P and Ta wave.	Supervisor	2015
Mr. Sujan Yenuganti	Design, fabrication and testing of meso and micro scale resonant pressure sensors.	Supervisor	2017
Mr. P. Pandiyan	Design and Modelling of MEMS based Logic Devices	Co-Supervisor	2018
Ms. R. Usharani	Design and Evaluation of piezoelectric broadband vibrational energy harvester with enhanced output	Supervisor	2018
Mr. G.Palanikumar	Quality Measurement and Dosage Control of Diesel Exhaust Fluid in Selective Catalytic Reduction System	Supervisor	2018
Mr. T. N. Satish	Design Development and Functional Evaluation of	Co-Supervisor	2020

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	Sensors For Aero Gas Turbine Engine Application		
Ms. T. Geerthy	Non-Invasive Cuffless Blood Pressure Estimation Using Analytical And Data- Driven Models	Supervisor	2020
Mrs. S. Shereen	Design, Fabrication and Testing of MEMS Magnetic Field Sensor with an Emphasis on Permanent Magnetic Materials	Supervisor	2020
Mr. MS Manjunath	Design, Fabrication and Testing of Rigid Center Diaphragm Based Pressure Sensors	Supervisor	2020
Ms. A. Ramya	Signal Conditioning Circuits for Temperature Sensors	Co-Supervisor	2022
Mr. Gilbert Chandra	MEMS in Space Applications	Supervisor	Ongoing
Ms. MD Vasumathi	Modeling and Control	Co-Supervisor	Ongoing
Mrs. S. Kumuda	Flexible Sensors for Biomedical Applications	Supervisor	Ongoing
Miss. Elsa Sharu Johnson	MEMS Fabrication and Testing of MEMS Devices	Supervisor	Ongoing

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### M.S. (By Research) THESIS SUPERVISION

Title of the Thesis/Research Work	Name of the M.S. Scholar	Status
Designs for sensitivity enhancement in resonance based pressure Sensor	Mr. Sujan Yenuganti	Completed (Co Guide)
Design and development of Micro Electro Thermal actuator and energy harvesting using pyroelectricity	Mr. S. Hariharakrishan	Completed (Co Guide)
Design, Simulation ,fabrication and testing of Micro ETC and Micro Pressure Sensor	Mr. Pankaj Shivhare	Completed
Electronics for Pressure Sensor	Ms. R. Akila	Completed
MEMS	Mr. Jittu Joseph	On-going

### 16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

Date (s)	Title of Activity	Level of Event (International/ National/ Local)	Role (Participant/ Speaker/ Chairperson, Paper presenter, Any other)	Event Organized by	Venue
11th & 12th Oct 2000	Calibration for the Next Millennium			Electronics Test And Development Center, Chennai.	Chennai
13th to 24th May 2002	QIP Course on Advanced Linear Control Systems			IIT, Mumbai	Mumbai
2nd to 7th Jan 2003	Course on MEMS			Department of Electrical Engg, IIT, Madras	Madras
9th to 14th June 2003	AICTE-ISTE Sponsored STTP on Recent Trends in Computer Buses for Process Automation			Department of Instrumentation, MIT	Chennai

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31st May to 13th June,20 04	AICTE –ISTE Sponsored two weeks STTP on Emerging Areas In Thin Film Science & Technology			Department of Physics, PSG College of Technology	Coimbat ore.
22nd Decem ber. 2004	International Workshop on Recent advances in smart materials, structures and systems.	Internatio nal		IISc., Bangalore.	Bangalor e
2nd May to 6th May,20 05	Intensive Continuing Education Course on Microsystems			Department of Electronics, IISc., Bangalore.	Bangalor e

	Technology				
20th June to 22nd June,20 05	Workshop on MEMS and Microfluidics using Coventorware			Technical Director, Coventor INC,USA and FTDPL Bangalore	Bangalor e
27th July 2005	Pre-Conference Workshop on BioMEMS & Neuroelectronic s			Institute of Smart Structures and Systems, IISc and National Aerospace Laboratories Bangalore.	Bangalor e
20th August 2005	Workshop on Renewable Energy – Energy of the Future			CEESAT, National Institute of Technology, Tiruchirapalli	Tiruchir apalli
April 05-07, 2006	Indo Chinese Workshop on MEMS			NPL, New Delhi	New Delhi
Marc 9th and 10th,20 07	Workshop on Indian nano User Program			IISc ,Bangalore	Bangalor e

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4th ,Jan 2007	Nano-,Neuro-,Bio-,Info-Technologies, MEMS,NEMS and Neurosurgery	Internatio nal	Joint Secretary	TIMA 2007 NIT, Tiruchirapalli	NIT Tiruchir apalli
13-17,Mar ch 2007	Recent Trends In Process Architecture			NIT, Tiruchirapalli	NIT Tiruchir apalli
28,Feb 2008	Nano materials Synthesis, Characterisation and Process Application			NIT, Tiruchirapalli	NIT, Tiruchir apalli
5th & 6th ,March 2008	Nano 2008Nano Materials and Characterisation			NIT, Tiruchirapalli	NIT, Tiruchir apalli
30th June to 5th	AICTE sponsored Short term program			IITM, Chennai	IITM, Chennai

July, 2008	on Engineering design principles and new product development				
. 8th - 9th August 2008	Workshop on Right to Information ACT, 2005 and Role of Information Officer			National Archives of India, RTI Cell, New Delhi	NIT, Tiruchir apalli
24th - 25th Septem ber, 2008.	Workshop on Advanced analog VLSI Design,			NIT, Tiruchirapalli	NIT, Tiruchir apalli
19th Februar y, 2009	Computer Networking – Hardware and software			M/s.SANAT Technologies, Chennai	NIT, Tiruchir apalli

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31st March and 1st April, 2009	CMOS-MEMS devices Technology and the future			Prof Takao, Toyohashi Univ of Technology, Japan	NIT, Tiruchirappalli
12th and 13th March 2009	Practical aspects of Computer networking			M/s. EXTREME Networks , Chennai	NIT, Tiruchirappalli
24 <sup>th</sup> to 28 <sup>th</sup> May 2010.	MEMS Software training program			IISC, Bangalore	IISC, Bangalore
9 <sup>th</sup> to 11 <sup>th</sup> January 2011	Joint Indocanadian Meeting on development of low cost lab-on-a-chip medical devices for healthcare monitoring			IIT Bombay	IIT Bombay
17 <sup>th</sup> to 18 <sup>th</sup> June 2011	Hands-on-SOI MUMPs training workshop			IISC, Bangalore	Bangalore
16 <sup>th</sup> to 18 <sup>th</sup> Nov 2011	Understanding design			IP&P, NID, Ahmadabad	Ahmadabad

17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)

Title of Activity	Level of Event (International/ National/ Local)	Date (s)	Role	Venue
5 <sup>th</sup> International Conference <b>TIMA-07</b>	International	January 4 <sup>th</sup> 6 <sup>th</sup> , 2007.	<b>Joint Secretary</b>	NIT Tiruchirappalli
1st National Conference <b>ICECON'03</b>	National	2003	Organizing Committee Member	NIT Tiruchirappalli

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2 <sup>nd</sup> National Conference ICECON' 05	National	2005	Organizing Committee Member	NIT Tiruchirappalli
3 <sup>rd</sup> National Conference ICECON' 07	National	December 2007.	Organizing Secretary	NIT Tiruchirappalli
3 <sup>rd</sup> National Conference ICECON' 09	National	2009	Organizing Committee Member	NIT Tiruchirappalli
Workshop- Trends in Industrial Instrumentation		10 <sup>th</sup> & 11 <sup>th</sup> August 2002	Coordinator	
Workshop- "MEMS" for Practicing Engineers and Educators		5 <sup>th</sup> and 6 <sup>th</sup> August 2005	Coordinator	NIT Tiruchirappalli
Workshop- Familiarization of MEMS and its CAD tools		28 <sup>th</sup> to 29 <sup>th</sup> March 2011		
Faculty Development Programme on MEMS and its CAD tool		26th to 30th July 2010, AICTE-MHRD	Coordinator	
Tutorials on, "Nano-, Neuro-, Bio- & Info-Technologies, Mems, Nems And Nuerosurgery And Embedded Systems On Chip"		4 <sup>th</sup> January 2007	Organizer	
International Conference ICECON - 2019	International	19 - 21 December 2019	Organizer	NIT Tiruchirappalli

18. Invited Talks delivered

Topic	Date	Inviting Organization
MEMS		MIT, Manipal



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PID control		Cethar Vessels Pvt Ltd
MEMS		MAM college of Engineering

19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member )	Organization	Membership No. with date
Life Member	Indian Society of Technical Education	LM-25872
Life Member	Institute of Smart Structures and Systems	LM-145
Life Member	Instrument Society of India	LM-1473
Life Member	System Society of India	LM-31628
Member	Institute of Engineers India	M-139328-0

20. Academic Foreign Visits

Country	Duration of Visit	Programme
USA	Feb 19th -21st, 2013	IEEE Conference

21. Publications

(A) Refereed Research Journals:

Author(s)	Title	Name of Journal	Volume	Page	Year
Gilbert Chandra D., Vinoth B., Srinivasulu Reddy U., Uma G., Umapathy M.	"Recurrent Neural Network based Soft Sensor for flow estimation in Liquid Rocket Engine Injector calibration, Flow Measurement and Instrumentation",		Volume 83, 2022, 102105, ISSN 0955-5986, <a href="https://doi.org/10.1016/j.flowme">https://doi.org/10.1016/j.flowme</a>		2021

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Ramya Anandanatarajan, Umapathy Mangalanathan, <b>Uma Gandhi</b>	"Performance enhancement and fault identification using Kalman filter in a resistive temperature sensor interface"	Measurement	Volume 183, 2021, 109836, ISSN 0263-2241, <a href="https://doi.org/10.1016/j.measurement.2021.109836">https://doi.org/10.1016/j.measurement.2021.109836</a> .		<b>2021</b>
TN Satish, A Vivek, SN Anagha, ANV Rao, <b>G Uma</b> , M Umapathy, U Chandrasekhar, G Kiran,	"Novel resistor-capacitor (RC) network-based capacitance signal conditioning circuit for tip clearance measurement on gas turbine engine"		Volume: 234 issue: 2, page(s): 342-360, February 1, 2020. DOI: <a href="https://doi.org/10.1177/0954410019865853">https://doi.org/10.1177/0954410019865853</a> .		<b>2020</b>
S. Raghavendran, M. Umapathy, <b>G. Uma</b> & L.R. Karlmarx,	"Piezoelectric energy harvesting from DC-DC converters"	Ferroelectrics	558:1, 207-213, 2020. DOI: 10.1080/00150193.2020.1735904.		<b>2020</b>
V. Raja, M. Umapathy, <b>G. Uma</b> , B. Praveen Kumar, S. Premkumar,	Design, analysis and experimental investigation of a rotational piezoelectric energy harvester with storage system	J. Mech. Sci. Technol.	34 (2020) 4475–4487. <a href="https://doi.org/10.1007/s12206-020-1008-4">https://doi.org/10.1007/s12206-020-1008-4</a> .		<b>2020</b>
Geerthy Thambiraj, <b>Uma Gandhi</b> , Umapathy Mangalanathan, V. Jeya Maria	"Investigation on the effect of Womersley number, ECG and PPG features for cuff less blood	Biomedical Signal Processing and Control	Volume 60, DOI: <a href="https://doi.org/10.1016/j.bspc.20">https://doi.org/10.1016/j.bspc.20</a>		<b>2020</b>

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Jose, Manjunath Anand	pressure estimation using machine learning”,		20.101942		
Ramya Anandanatarajan, Umapathy Mangalanathan and <b>Uma Gandhi,</b>	"Enhanced Microcontroller Interface of Resistive Sensors Through Resistance-to-Time Converter”	IEEE Transactions on Instrumentation and Measurement	vol. 69, no. 6, doi: 10.1109/TIM.2019.2928348.	pp. 2698-2706	<b>2020</b>
Shereen Selvaraj, <b>Uma Gandhi,</b> Umapathy Mangalanathan, Gopalkrishna Hegde	“Magnetic Force based Resonant Magnetic Field Sensor with Piezoelectric Readout”	IEEE Sensors Journal	DOI: 10.1109/JSEN.2020.3004272		<b>2020</b>
Shereen Selvaraj, <b>Uma Gandhi,</b> L. John Berchmans, Umapathy Mangalanathan	“Effect of magnetic ion substitution on the structure and temperature-dependent magnetic properties of strontium hexaferrite”	Materials Technology	DOI: 10.1080/10667857.2020.1723832		<b>2020</b>
Shereen Selvaraj, <b>Uma Gandhi,</b> U. Mehana Usmaniya, L. John Berchmans, Umapathy Mangalanathan	“Effect of high energy ball milling on molten salt synthesized barium hexaferrite powder”	IEEE Transactions on Magnetics	DOI: 10.1109/TMAG.2020.2979681		2020
Shereen Selvaraj, <b>Uma Gandhi,</b> M. Umapathy, John Berchmans	Enhancement of saturation magnetization and remenance of BaFe <sub>12</sub> O <sub>19</sub> materials prepared by NaCl-KCl and Hexamine as flux	IEEE Magnetics Letters	DOI: 10.1109/LMAG.2020.2965889		2020
Geerthy Thambiraj, <b>Uma Gandhi,</b> Viji Devanand and	Noninvasive cuffless blood pressure estimation using pulse transit time, Womersley number, and	Institute of Physics and Engineering in Medicine Physiological Measurement,	Volume 40, No. 7,		2019.

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Umapathy Mangalanathan	photoplethysmogram intensity ratio				
Ramya Anandanatarajan , Umapathy Mangalanathan, Uma Gandhi	Enhanced Microcontroller Interface of Resistive Sensors through Resistance-to-Time Converter	IEEE Transactions on Instrumentation and Measurement	DOI: 10.1109/TIM.2019.2928348		2019
M. S. Manjunath, G Uma, M. Umapathy, M. M. Nayak	Bossed diaphragm coupled fixed guided beam structure for MEMS based piezoresistive pressure sensor	Sensors Review	39 No.4	586–597	2019
TN Satish , A Vivek, SN Anaghal, ANV Rao, G Uma M Umapathy U. Chandrasekhar, G Kiran	Novel resistor-capacitor (RC) network-based capacitance signal conditioning circuit for tip clearance measurement on gas turbine engine	Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering	DOI: 10.1177/0954410019865853	1-19	2019
Raghavendran Srinivasan, Umapathy Mangalanathan, <b>Uma Gandhi</b> ,	Dual input buck-boost converter for hybrid Piezoelectric Energy Harvester-Supercapacitor sources	AEU - International Journal of Electronics and Communications	152926	pp 1-13	2019
Raghavendran Srinivasan, Mangalanathan Umapathy, <b>Uma G</b> , Karl Marx,	Bridgeless active rectifier for piezoelectric energy harvesting	IET Circuits, Devices & System	Vol. 13 Iss. 7	pp-1078-1085	2019
T.N. Satish, A.N.V. Rao, A.S. Nambiar, <b>G. Uma</b> , M. Umapathy, U. Chandrashekar V.U. Petley,”.	Investigation into the Development and Testing of a Simplex Capacitance Sensor for Rotor Tip Clearance Measurement in Turbo Machinery	Experimental Techniques	Volume 42, Issue 6	pp 575–592	2018

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M. S. Manjunath, N. Nagarjuna, <b>G. Uma</b> , M. Umapathy, M. M. Nayak, K. Rajanna,	Design, fabrication and testing of reduced graphene oxide strain gauge based pressure sensor with increased sensitivity	Microsystems Technologies	Vol 24, Issue 7	pp 2969–2981	2018
R Usharani <b>G Uma</b> , M Umapathy, Seung-Bok Choi	A Novel Piezoelectric Energy Harvester Using Multi-Stepped Beam with Rectangular Cavities	Applied Sciences,	Vol 8, Issue 11, 2091	1-19	2018
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Pandiyan P <b>Uma G</b> , Umapathy M	Design And Simulation Of Electrostatic NEMS Logic Gates	The International Journal for Computation and Mathematics in Electrical and Electronics Engineering	37 (1),	pp.2-28,	2017
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K. Suresh G. Uma B.V.M.P. Santhosh Kumar U. Varun Kumar M. Umapathy	Piezoelectric based resonant mass sensor using phase measurement	Measurement	Vol. 44, No.2	320-325	2011
B.V.M.P. Santhosh Kumar K. Suresh U. Varun Kumar G. Uma M. Umapathy	Design and simulation of resonance based DC current sensor	International Journal of Interaction and Multiscale Mechanics	Vol. 3, No. 3	257-266	2010
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G. Uma M. Umapathy K. Suneel Kumar K. Suresh A. Maria Josephine	Microcontroller based split mass resonant sensor for absolute and differential sensing	Journal of Smart Structures and Systems	Vol. 5, No.3	279-290	2009
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J. Vijay, Ivan Saha, G.Uma, M. Umapathy	Modeling and simulation of multi-port switch	Journal of Physics	of	Conference Series 34	715-721	2006
M. Shanmugavalli, G. Uma, B. Vasuki, M. Umapathy	Design and simulation of MEMS device using interval analysis	Journal of Physics	of	Conference Series 34	601-605	2006

(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/ Paper	Title of the Proceedings	Page numbers	Conference Theme	Venue	Year
G. Sruthi, G. Uma, M. Umapathy, ParthaSarathi V	Sliding Mode Control for Piezoelectric Actuated Cantilever based Liquid Pumping System	ISSS National Conference on MEMS, Smart materials, Structures and Systems			IIT Kanpur	2016
G. Sruthi, ParthaSarathi V, G. Uma, M. Umapathy	Design of Closed Loop Micro Accelerometer for Performance Improvement	ISSS National Conference on MEMS, Smart materials, Structures and Systems			IIT Kanpur	2016
Akila R, G. Uma, M. Umapathy	Sensitivity Enhancement of Resonant Sensor using Output Feedback Control	3rd International Conference on Electrical, Electronics, Engineering Trends, Communication, Optimization and Sciences (EEECOS), 2016				2016

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Akila R, <b>G. Uma</b> , K. Suresh, S.S.Choi, M. Umapathy	Design of an electronic oscillator for resonant pressure sensor with noncollocated sensor and actuator	SPIE Active and Passive Smart Structures and Integrated Systems Conference			Las Vegas, U.S.A	2016
Pankaj Shivhare,	Sensitivity Improvement of a	International Conference on MEMS and Sensors			IIT Madras	2014
<b>G. Uma</b> , Y. Sujan, M. Umapathy	Silicon Nitride Beam Resonant Pressure Sensor	(ICMEMSS 2014)				
Pandiyan. P, <b>G. Uma</b> , M. Umapathy , Y. Sujan	Design and Simulation of Chevron Type MEMS Digital to Analog Converters	International Conference on MEMS and Sensors (ICMEMSS 2014)			IIT Madras	2014
Pandiyan. P, <b>G. Uma</b> , M. Umapathy , K. Suresh	Sensitivity Improvement of Resonant Sensor With PID Controller	Proceedings of the 2014 IEEE Students Technology Symposium (IEEE TechSym 2014)	170-175		IIT Kharagpur	2014
Pankaj Shivhare, <b>G. Uma</b> , M. Umapathy	A Micro Gripper for High Force Application Using In-Plane Chevron Electrothermal Actuator	Proceedings of International Conference on Microelectronics, Circuits & Systems (Micro-2014)				2014
P. Pandiyan, <b>G. Uma</b> , M. Umapathy	Design and simulation of 3-bit MEMS electro thermal compliant actuator based analog to digital converter	Proceedings of 7 <sup>th</sup> International Conference on smart materials, structures and systems(ISSS-2014),			Bangalore	2014

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J.Sivaraman, <b>G.Uma,</b> M. Umapathy	A novel approach to determine atrial repolarization in electrocardiograms	40 <sup>th</sup> International Congress on Electrocardiology,			Scotland, UK	2013
S. Hariharakrishnan, D. Ezhilarasi, <b>G. Uma,</b> M. Umapathy	Experimental investigation of a novel hybrid energy harvesting system using ferroelectric material	Proceedings of Texas Instruments India Educator's Conference			Bangalore	2013
<b>G. Uma,</b> U.VarunKumar, B.V.M.P. Santosh Kumar, K.Suresh	Design and Modelling of Piezoelectric Sifter	Proceedings of IEEE Sensors Applications Symposium (SAS-2013),	205-208		Texas, USA	2013
Y Sujan, B.Vasuki, <b>G. Uma,</b>	Thickness sensor for Ferromagnetic sheets	Proceedings of 6 <sup>th</sup> IEEE International Conference on Sensing Technology (ICST-	93-96		Kolkata	2012
D. Ezhilarasi, K. Suersh		2012)				
Y Sujan, B.Vasuki, <b>G. Uma</b>	T-Shaped Resonating Beam Pressure Sensor	Proceedings of 10 <sup>th</sup> IEEE International Conference on Semiconductor Electronics (ICSE-2012)	271-275		kualalumpur, Malaysia	2012
P.Pandiyan, <b>G. Uma,</b> M. Umapathy	Design of logic gates using laterally-actuated double-gate NEMS	Proceedings of the 9th International Workshop on Nanomechanical Sensing 2012(NMC-2012)			IIT Bombay, Mumbai,	2012

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S. Harihara krishnan, D.Ezhilara si, <b>G.Uma,</b> M. Umapathy , Y Sujan	Enhancement of vertical displacement in electro thermal micro actuator	Proceedings of International Conference on Smart Materials Structures and Systems (ISSS-2012)			IISc Bangalor e	2012
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K. Suresh, <b>G.</b> <b>Uma,</b> M. Umapathy	A Resonant Accelerometer with Piezoelectric self sensing electronics	Proceedings of International Conference on Smart Materials Structures and Systems (ISSS-2012)			Bangalor e	2012
J.Sivaram a n, <b>G.Uma</b>	A Non-Invasive Detection of Somnolence based on the peripheral physiological parameter	Proceedings of International Conference on Biomedical Engineering and Assistive Technologies (BEATS)			NIT Jalandhar	2010

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B.V.M.P Santhosh Kumar, M. Umapathy , U. Varun Kumar, K. Suresh, <b>G. Uma</b>	Design of piezo laminated cantilever based phase detector	Proceedings of 4 <sup>th</sup> ISSS National Conference on Microsystems, smart materials and structures			NIT, Nagpur	2010
U. Varun Kumar, M. Umapathy , B.V.M.P. Santhoshkumar, K. Suresh, <b>G. Uma</b>	Smart structure for measuring angular velocity	Proceedings of 4 <sup>th</sup> National Conference on Microsystems, smart materials and structures			NIT, Nagpur	2010
S.Meenathisundaram, S.M. Kulkarni, P.R. Venkateswaran, <b>G. Uma, M. Umapathy</b>	Design and Range Analysis of Micro Pressure Sensors	Proceedings of National Conference on ICT: Theory, Applications and Practices			Sir Padampat Singhania University, Udaipur	2010
K. Suresh, B.V.M.P. Santhosh Kumar, U.V. Kumar, M. Umapathy and <b>G. Uma</b>	Simulation of DC Current Sensor	Proceedings of COMSOL Conference			Bangalore	2010
B.V.M.P Santhosh Kumar, U. Varun Kumar, K. Suresh, <b>G. Uma</b> and M.	Frequency Detector using Piezo laminated cantilever beam	Proceedings of International Conference on Power Electronics and Instrumentation Engineering (PEIE- 2010)	104-107			2010



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B.V.M.P Santhosh Kumar, M. Umapathy, U. Varun Kumar, K. Suresh and G. Uma	Occupancy sensor using piezo laminated cantilever beam	Proceedings of 6 <sup>th</sup> International conference on Vibration Engineering and Technology of Machinery	451-455		IIT Delhi	2010
M. Shanmugavalli, G. Uma, M.	Experimental evaluation of coriolis mass flowmeter using	Proceedings of 6 <sup>th</sup> International conference on Vibration Engineering and Technology of	456-462		IIT Delhi	2010
Umapathy	piezoelectric sensing and actuation	Machinery				
U. Varun Kumar, M. Umapathy, B.V.M.P.S anthosh kumar, G. Uma and K. Suresh	Smart structure for measuring the time period of a simple pendulum	Proceedings of 6 <sup>th</sup> International conference on Vibration Engineering and Technology of Machinery	544-549		IIT Delhi	2010
K. Suresh, B.V.M.P.S antosh Kumar, U. Varun Kumar, G. Uma, M. Umapathy	A novel thickness measurement using a piezo laminated cantilever resonator	Proceedings of National Conference ICECON 09	52-55		National Institute of Technology, Trichy	2009

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<b>G. Uma,</b> M. Umapathy, L. Bab y Vidhya, M. Ma ya, T. Sophia, K. Tamilarasi	Design and analysis of resonant based gas sensor	Proceedings of IEEE Sensors Applications Symposium (SAS-2008)			Atlanta, GA, USA	2008
<b>G. Uma,</b> M. Umapathy, K. Suresh, M. Shanmuga valli	Design and simulation of meso and micro split beam resonators	Proceedings of International Conference on Smart Materials Structures and Systems(ISSS-2008)			Bangalore	2008
<b>G. Uma,</b> K. Suresh, M. Umapathy, M. Shanmuga valli	Closed loop electronics for resonant sensors	Proceedings of International Conference on Smart Materials Structures and Systems (ISSS-2008 )			Bangalore	2008
<b>G. Uma,</b> M. Umapathy, S. Meenatchi sundaram	“ Dynamic simulation of micro resonator based differential pressure sensor	Proceedings of SPIE International conference on smart structures and materials			San Diego, USA	2007
M. Umapathy, A. Girija, <b>G. Uma,</b> B. Bandopad hyay	Active vibration control of piezoactuated structures using fast output sampling based sliding mode control	smart structures and Proceedings of SPIE International conference on materials			San Diego, USA	2007

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B. Vasuki, M. Umapathy, <b>G. Uma,</b> M. Shanmuga valli, S. Meenatchi sundaram	Uncertainty analysis of mircoresonator using classical and interval methods	Proceedings of SPIE International conference on smart structures and materials			San Diego, USA	2007
M. Indumathy , <b>G. Uma,</b> M. Umapathy,	Design of fast output sampling feedback controller for ER fluid actuated car suspension system	Proceedings of the International Conference on Trends in Industrial and Automation (TIMA- 2007)	251-256		NIT Trichy	2007
S. Meenatchi sundaram, <b>G. Uma,</b> M. Umapathy, B.S. Sathyanara yana and P.R. Venkatesw aran	Displacement analysis of microresonators	Proceedings of the International Conference on Trends in Industrial and Automation (TIMA- 2007)	83-87		NIT Trichy	2007
A. Girija, M. Umapathy, B. Bandyopa dhyay, <b>G. Uma,</b> K. Dhanalaks hmi	Discrete time sliding mode control for piezoelectric actuated structures	Proceedings of IEEE International Conference on Industrial Technology (ICIT -2006)	1466- 1471		Mumbai	2006
D. Ezhilarasi, M. Umapathy, B. Bandyopa dhyay, <b>G. Uma</b>	Design and experimental evaluation of composite output feedback control for smart structures	Proceedings of IEEE International Conference on Industrial Technology (ICIT- 2006)	692-697		Mumbai,	2006

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N. Senthil Manohara n, <b>G. Uma</b> , M. Umapathy, S. Meenatchi sundaram	Structural vibration control using quantitative feedback theory”	Proceedings of IEEE International Conference on Industrial Technology (ICIT-2006)	1816-1822		Mumbai	2006
P.Vetrivel, <b>G.Uma</b> , M.Umapathy	Design & simulation of high Q micromechanical resonator	Proceedings of 11 <sup>th</sup> National Seminar on Physics and Technology of Sensors			Pune	2006

(C) Books & Monographs

<b>Author(s)</b>	<b>Title of Book/Monograph</b>	<b>Name of Publishers</b>	<b>Year of Publication</b>	<b>ISSN/ISBN Number</b>
M.Umapathy, <b>G. Uma</b> and K. Suresh	Micro and Smart Devices and Systems	Springer	2014	978-81-322-1912-5