



Name : Dr.U.Snehalatha
Designation : Associate Professor
Mail-id : snehalau@srmist.edu.in
Area : Biomedical Engineering
Affiliation : Department of Biomedical Engineering, Kattankulathur campus, SRM University
Education : Ph.D Biomedical Engineering, SRM University, Jan 2015
M.E Medical Electronics, Anna University, 2005
B.E Electronics and Communication Engineering, Jaya Engineering College, Madras University, 2002

Patents filed:

- Ramji Kalidoss, **Snehalatha Umapathy**, "An Instrument for Determination of Acetone in Exhaled Air" patent application no: 201841047738 filed on 17th dec 2018, Published on 18th Oct 2019.
- Richa Rashmi, Snehalatha Umapathy, A Portable Instrument for determining fat and water in Mass, patent application no: 201941013152, Filed on 1st April 2019
- Rajashankari, **Snehalatha Umapathy**, Rajalakshmi T. Automated audiometer system submitted for Patent application no: 202041037849, Filed on 2nd September 2020, published on 11th September 2020.
- Vijai Sai, Rajalakshmi T, **Snehalatha Umapathy**, Non invasive diagnosis of thyroid disorders using Electroglottography Patent application no:202041040315 filed on 17th Sep 2020.

Selected Publications:

Journal Publications

SCI indexed with Impact factor Journals

- **U.Snehalatha**, Palani Thanaraj K, Sangamithirai K, (2020), Computer aided diagnosis of obesity detection based on thermal imaging using various convolutional Neural Networks Biomedical Signal Processing and Control Journal online 29th September 2020 <https://doi.org/10.1016/j.bspc.2020.102233> (IF 3.137)

- K.Ramji, **U.Snekhaltha**, Radhakrishnan K, Uthvag S (2020), Adsorption kinetics feature extraction from breath print obtained by graphene based sensors for diabetes diagnosis. Accepted in Journal of Breath Research on 6th Oct 2020 (IF 3)
- Usha Rani, **U.Snekhaltha**, Kumar JS (2020). Computer aided diagnostic method for the Evaluation of Type II Diabetes Mellitus in facial thermograms Australian Physical and Engineering Sciences Journal DOI 10.1007/s13246-020-00886-z on line 10th June 2020 (IF 1.006)
- Palani Thanaraj Krishnan, Parvathavarthini Balasubramanian, **Snekhaltha Umapathy** (2020), "Automated heart sound classification system from unsegmented PCG using deep neural network" Australian Physical and Engineering Sciences Journal <https://doi.org/10.1007/s13246-020-00851-w>, online 11th Feb 2020 (IF 1.006)
- Usha Rani, **U.Snekhaltha**, Palani Thanaraj K, Kumar JS (2020), Human Tongue Thermography Could Be a Prognostic Tool for Prescreening the Type II Diabetes Mellitus. Evidence-Based Complementary and Alternative Medicine. Journal vol. 2020, Article ID 3186208, 16 pages, 2020. <https://doi.org/10.1155/2020/3186208>..(IF 2.06)
- **U.Snekhaltha**, T.Rajalakshmi, Nilkanth Gupta, Suma (2019), Thermography and Colour Doppler Ultrasound: A Potential Complimentary Diagnostic Tool in Evaluation of Rheumatoid Arthritis in Knee Region Biomedical Engineering online 10th dec 2019 DOI: <https://doi.org/10.1515/bmt-2019-0051> (IF 1.007).
- K.Ramji, **U.Snekhaltha** (2019), An overview on the exponential Growth on Non-Invasive Diagnosis of Diabetes Mellitus from exhaled breath by nano structured metal oxide chemo-resistive gas sensors and μ -preconcentrator -An overview Biomedical Micro devices online 3rd dec 2019, <https://doi.org/10.1007/s10544-019-0448-z> (IF 2.327).
- K.Ramji, **U.Snekhaltha**, Rohini, Ganesh, S.Yuvaraj (2019) Comparative study on the preparation and Gas sensing properties of Graphene oxide/SnO₂ Binary nanocomposite for Detection of Acetone in Exhaled Breath Analytical chemistry 14th March 2019 DOI: 10.1021/acs.analchem.8b05670 (IF 6.042)
- K.Ramji, **U.Snekhaltha** (2019) A Comparison of Exhaled Breath Online and Offline Measurements for Diabetes Pre-Screening by Graphene-based Sensor: From Powder Processing to Clinical Monitoring Prototype, Journal of breath Research, online Feb 22nd 2019 <https://doi.org/10.1088/1752-7163/ab09ae> (IF 3.489)
- D.Ashok kumar, M.Anburajan, **U.Snekhaltha** (2018) "Evaluation of low bone mass and prediction of fracture risk using metacarpal radiogrammetry method: A comparative study with DXA and X-ray Phantom" International Journal of Rheumatic diseases July 2018; 21: 1350-1371 (IF 2.42)
- K.Ramji, **U.Snekhaltha**, S.Yuvaraj (2018), An investigation of GO-SnO₂-TiO₂ ternary nanocomposite for the detection of acetone in diabetes mellitus breath. Applied Surface science 2018; 449: 677-684(IF 4.439)

- **U.Snekhaltha**, T.Rajalakshmi, Gopikrishnan, Nilkantha Gupta (2017) “Computer based automated analysis of x-ray and Thermal imaging of Knee region in Evaluation of Rheumatoid arthritis” Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine, on line: 27th October 2017 [https:// doi: org/10.1177/0954411917737329](https://doi.org/10.1177/0954411917737329) (IF: 1.124)
- **U.Snekhaltha** , Sowmiya V, Nilkantha Gupta (2017), A computer aided diagnostic based Thermal image Analysis: A potential tool for the Evaluation of Rheumatoid Arthritis in Hand” Journal of Medical and Biological Engineering, on line: 30th September 2017, DOI: <https://doi.org/10.1007/s40846-017-0338-x> (IF 1.21)
- **Snekhaltha U**, Muthubhairavi V, Anburajan M, Neelkanth Gupta (2016), “Ultrasound Color Doppler Image Segmentation and Feature Extraction in MCP and Wrist region in Evaluation of Rheumatoid Arthritis, Journal of medical systems 2016, 40:197, DOI:10.1007/s10916-016-0552-z (IF 2.64)
- **Snekhaltha U**, Anburajan.M , Sowmiya V, Venkatraman.B, Menaga.M, Automated hand thermal image segmentation and feature extraction in evaluation of rheumatoid arthritis (2015) ” Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine, 229(4):319-331, April 2015, DOI: 10.1177/0954411915580809 (IF 1.124).
- **Snekhaltha U**, Anburajan M (2015), “Computer Based Measurements of Joint space analysis at metacarpal morphometry in Hand Radiograph for evaluation of Rheumatoid arthritis”. International Journal of Rheumatic disease, online March 2015, DOI: 10.1111/1756-185X.12559 (IF 2.4)

Scopus indexed Journals

- Richa Rashmi, **U.Snekhaltha (2020)**, Thermal imaging method in the evaluation of obesity in various body regions – A preliminary study. IOP conference series, Material science Engineering, 912, 062022 doi:10.1088/1757-899X/912/6/062022 SNIP 0.543
- Tuhin Sen Gupta, **U.Snekhaltha**, T.Rajalakshmi (2020), Smart Helmet Arduino Kindled Optimization. IOP conference series, Material science Engineering, 912 062023 doi:10.1088/1757-899X/912/6/062023 SNIP 0.543
- Meghna Sampath, **U.Snekhaltha** Nelufer, Sakhshi, Sakshi Srivastava (2020), Thermal imaging in the evaluation of Psoriasis in upper limb region. IOP conference series, Material science Engineering, 912 062026 doi:10.1088/1757-899X/912/6/062026 SNIP 0.543
- Gayathri, Sheik, Monisha, T.Rajalakshmi, **U.Snekhaltha (2020)**, A hand held device to monitor physiological changes in Sweat. IOP conference series, Material science Engineering, 912 062036, doi:10.1088/1757-899X/912/6/062036 SNIP 0.543
- Santhoshini Arulvallal, **U.Snekhaltha**, (2020), Sleep Apnea detection using Smart Watch and data analysis using Neural networks International Journal of Scientific and Technology Research 9(1); 904-907, Jan 2020.

- Richa Rashmi, **U.Snehalatha (2019)** "Evaluation of body composition parameters using various diagnostic methods: A Meta analysis study" Obesity Medicine, <https://doi.org/10.1016/j.obmed.2019.100150>. online 11th October 2019
- T.Rajalakshmi, **U.Snehalatha, Jisha baby (2018)**. Segmentation of liver tumor using fast greedy snake algorithm. Biomedical Engineering: Application Basis and Communications <https://doi.org/10.4015/S1016237219500133> Online March 2018.
- **U.Snehalatha, D.Ashok kumar, PadmajaVasan (2018)**, "Semi-automated approach in the evaluation of low bone mass using clavicle radiogrammetry technique" International journal of Engineering and Technology (UAE), 7 (2.8), 169-174 March 2018.
- **U.Snehalatha, Nida Mir, Mehvish Khan, Parimal Raj, Vimaladhithan, yeshi choden (2018)**, Facial Thermography: A potential tool to evaluate the dental disorders, International journal of Engineering and Technology (UAE), 7(2.8), 175-181.
- **U.Snehalatha, T.Rajalakshmi, Gopikrishna (2018)**, Automated Segmentation of knee thermal imaging and x-ray in Evaluation of Rheumatoid arthritis, International journal of Engineering and Technology (UAE), 7(2.8), 326-330
- **Snehalatha U, T.Rajalakshmi, Vinitha Sri, Balachander, Shankar (2018)**, Non invasive measurement of blood glucose based on galvanic skin resistance in diabetes mellitus Biomedical Engineering: Application Basis and Communications online 27th Feb 2018, <https://doi.org/10.4015/S1016237218500096> (SNIP 0.207)
- **U.Snehalatha, T.Rajalakshmi, Shamila Rachel (2017)**, "Automated Speech signal analysis, feature extraction and classification of Spasmodic dysphonia: A performance comparison using different neural networks" International Journal of Speech Technology, online 31st October 2017, DOI: 10.1007/s10772-017-9471-8, Scopus indexed (SNIP 1.038)
- D.Ashok kumar, Muhammed javad, **U.Snehalatha (2017)** "Assessment of low bone mass using Peripheral Dual X-Ray Absorptiometry(Pdxa) in different ethnic groups". Asian Journal of Pharmaceutical and clinical Research 10 (9); 74-77, Sep 2017 Scopus and Elsevier indexed (SNIP 0.567)
- Shamila rachel, **U.Snehalatha, Vedhasorubini, Balakrishnan D (2017)**, Spectral Analysis and Feature Extraction of Speech Signal in Dysphonia patients, International Journal of Pure and Applied mathematics, May 2017; 113(11): 151-160 Scopus and Elsevier indexed (SNIP 0.635)
- Suma, **U.Snehalatha, T.Rajalakshmi (2016)**, Evaluation of Rheumatoid arthritis in thermography and color Doppler ultrasound, International journal of control theory and applications, 9(37); PP 443-457, 2016 Scopus indexed.
- Nirmal Adam Sait, M. Thangarajan, **U.Snehalatha (2016)** Neural network based on Verilog HDL for fetal ECG extraction, International Journal of Biomedical Research , 7(10): 698-701, Nov 2016

- **Snekhaltha.U**, Anburajan.M, B.Venkatraman, M.Menaka and Baldev Raj **(2011)**, “Thermal Imaging Method for Evaluation of Rheumatoid Arthritis in Small Animal Model– A Preliminary Study, CIIT international journal of digital image processing August 2011;3(13):859-863 DOI: DIP082011009

Book chapter Publications

- Meghna Sampath, **U.Snekhaltha** Nelufer, Sakhshi, Sakshi Srivastava**(2020)**, Comparison of manual and semi-automated method in measurement of Joint space width measurement in feet region of RA patients In: Sharma D., Balas V., Son L., Sharma R., Cengiz K. (eds) Micro-Electronics and Telecommunication Engineering. Lecture Notes in Networks and Systems, vol 106. Springer, Singapore, https://doi.org/10.1007/978-981-15-2329-8_11 PRINT ISBN: 978-981-15-2328-1, online 3rd April 2020.
- Usha Rani, **U.Snekhaltha** **(2020)**, Classification of Prediabetes and Healthy Subjects in Plantar Infrared Thermal Imaging Using Various Machine Learning Algorithms In: Sharma D., Balas V., Son L., Sharma R., Cengiz K. (eds) Micro-Electronics and Telecommunication Engineering. Lecture Notes in Networks and Systems, vol 106. Springer, Singapore, https://doi.org/10.1007/978-981-15-2329-8_11 PRINT ISBN: 978-981-15-2328-1, online 3rd April 2020.
- Anu Priya M., **Snekhaltha U.**, Mahalakshmi R., Dhivya T., Gupta N. **(2020)** Design and Analysis of Customized Hip Implant Using Finite Element Method. In: Dash S., Lakshmi C., Das S., Panigrahi B. (eds) Artificial Intelligence and Evolutionary Computations in Engineering Systems. Advances in Intelligent Systems and Computing, vol 1056. Springer, Singapore https://doi.org/10.1007/978-981-15-0199-9_44, pp 515-525, e-ISBN 978-981-15-0199-9, PRINT ISBN: 978-981-15-0198-2, online 9th Feb 2020 (SNIP 0.434)
- Nida Mir, **U.Snekhaltha**, Mehvish Khan, yeshi choden, **(2019)**, Thermal Image segmentation of facial thermograms using k-means algorithm in the evaluation of orofacial pain, In: Durai Pandian, Xavier Fernando, Zubair Baig, Fuqian Shi Proceedings of International conference on ISMAC in computational vision and Bio-Engineering 2018, Lecture notes in computational vision and biomechanics, Springer Nature Switzerland AG, 1st ed 2019, vol 30, pp 565-572. Doi:10.1007/978-3-030-00665-5, e book ISBN: 978-3-030-00665-5, ISSN: 2212-9391
- Sangamithirai, **U.Snekhaltha** Sanjeena R, Lipika, **(2019)**, Thermal imaging of abdomen in evaluation of obesity: A comparison with Body composition analyzer-A Preliminary study. In: Durai Pandian, Xavier Fernando, Zubair Baig, Fuqian Shi Proceedings of International conference on ISMAC in computational vision and Bio-Engineering 2018, Lecture notes in computational vision and biomechanics, Springer Nature Switzerland AG, 1st ed 2019 vol 30, pp 79-88, Doi:10.1007/978-3-030-00665-5, e book ISBN: 978-3-030-00665-5, ISSN: 2212-9391

- Jisha baby, T.Rajalakshmi, **U.Snekhaltha (2019)**. Detection of liver tumor using gradient vector flow algorithm. In: Durai Pandian, Xavier Fernando, Zubair Baig, Fuqian Shi. Proceedings of International conference on ISMAC in computational vision and Bio-Engineering 2018, Lecture notes in computational vision and biomechanics, Springer Nature Switzerland AG, 1st ed 2019 vol 30, pp 1065-1066, Doi:10.1007/978-3-030-00665-5, e book ISBN: 978-3-030-00665-5, ISSN: 2212-9391
- **U.Snekhaltha.**, Gomathy V. (2018) Ultrasound Thyroid Image Segmentation, Feature Extraction, and Classification of Disease Using Feed Forward Back Propagation Network. In: Saeed K., Chaki N., Pati B., Bakshi S., Mohapatra D. (eds) Progress in Advanced Computing and Intelligent Engineering. Advances in Intelligent Systems and Computing, vol 563. Pp 89-98 online feb 9th 2018, Springer, Singapore
- Shamila rachel, **U.Snekhaltha**, Vedhasorubini, Balakrishnan D (2018), Spectral Analysis of speech signal characteristics: A comparison between Healthy control and laryngeal disorder, Springer International Conference on Intelligent Computing and Applications (ICICA 2016), Advances in Intelligent system and computing, Springer, Jan 2018, pp 333-341 DOI: 10.1007/978-981-10-5520-1_31
- **Snekhaltha U**, Anburajan M (2016), Automated hand Radiograph segmentation, feature extraction and classification using feed forward BPN network in evaluation of Rheumatoid arthritis, Proceedings of 2nd International Conference on Intelligent Computing and Applications Advances in Intelligent system and computing, springer singapore 2016.Vol 467,pp 133-154, DOI:10.1007/978-981-10-1645-5
- Sugantha Bhattacharrya, **U.Snekhaltha (2015)**, Classification of Right bundle branch block and left bundle branch block cardiac arrhythmias based on ECG analysis, Artificial intelligence and Evolutionary algorithms in Engineering systems, Advances in Intelligent system and computing, springer India, vol 325, 2015, pp 331-342, doi: 10.1007/978-81-322-2135-7_36

IEEE International Conferences Publications

- **U. Snekhaltha**, B. Guhan, S. Sowmiya and T. Rajalakshmi (2020), "Analysis of Heel Fissure Therapy using Thermal Imaging and Image Processing," 2020 International Conference on Communication and Signal Processing (ICCSP), Chennai, India, 2020, pp. 0326-0331, doi: 10.1109/ICCSP48568.2020.9182447.
- P. Vijay Sai, T. Rajalakshmi and **U. Snekhaltha (2020)**, "Estimation of Glottal Function based on Electroglottography for Normal and Thyroid Subjects – Hardware Design," 2020 International Conference on Communication and Signal Processing (ICCSP), Chennai, India, 2020, pp. 0342-0347, doi: 10.1109/ICCSP48568.2020.9182307.
- Santhoshini Arulvallal, **U.Snekhaltha**, T.Rajalakshmi (2019), Design and development of wearable device for continuous monitoring of sleep apnea disorder. 2019 International Conference on Communication and Signal Processing (ICCSP), Chennai, India, 2019, pp. 0050-0053.doi: 10.1109/ICCSP.2019.8697961
- Priyanka S, T.Rajalakshmi, **U.Snekhaltha (2019)**, Wearable cardiorespiratory monitoring device for heart attack prediction. 2019 International Conference on Communication and

- Subitcha Jayasankar, Vijitha Periyasamy, **Sneekhalatha U**, and Manojit Pramanik (2018) “Raman Monte Carlo simulation of tooth model with embedded sphere for different launch beam configurations” 2018 Fourth International Conference on Biosignals, Images and Instrumentation (ICBSII), Chennai, India, 2018, pp. 206-212. doi: 10.1109/ICBSII.2018.8524632. 8th November 2018
- Mugdha manerkar **U.Sneekhalatha**, Shashwata Harsh, Juhi Saxena, Simanta P.Sarma, M.Anburajan Automated skin disease segmentation and classification using multi class SVM classifier EEECOS 2016 pp 363-368 IET digital Library DOI: [10.1049/cp.2016.1528](https://doi.org/10.1049/cp.2016.1528)
- Muhammed Javad, D.Ashok kumar **U.Sneekhalatha (2017)** “Estimation of low bone mass using forearm and calcaneum bone mineral density in young Indian population”. IEEE conference RVS Technical college, Coimbatore IEEE explore pp 33-36.
- Mugdha manerkar, Shashwata Harsh, Juhi Saxena, Simanta P.Sarma, **U.Sneekhalatha (2016)**, Classification of skin disease using multi SVM classifier IEEE conference EEECOS 2016 pp 363-368
- Suma, **U.Sneekhalatha**, T.Rajalakshmi (2016) “Automated thermal image segmentation of knee rheumatoid arthritis”, Proceedings of International conference on communication and signal processing (ICCSP’16). Adhiparasakhti Engineering college, melmaruvathur, Tamilnadu, 6th -8th April 2016, pp 535-539, ISBN: 978-1-5090-0396-9/16
- Gopikrishnan, T.Rajalakshmi, **U.Sneekhalatha (2016)**, “Diagnosis of rheumatoid arthritis in knee using fuzzy c means segmentation technique”, Proceedings of International conference on communication and signal processing (ICCSP’16). Adhiparasakhti Engineering college, melmaruvathur, Tamilnadu 6th -8th April 2016 pp430-433, ISBN: 978-1-5090-0396-9/16
- Ms.V.Gomathy, **U.Sneekhalatha (2015)**, “Automated segmentation using PCA and Area estimation of Thyroid gland using ultrasound images" 2nd IEEE International Conference on Innovations in information, Embedded and Communication Systems (ICIIECS'15), Karpagam college of Engineering Coimbatore, Tamil Nadu 19 - 20th March, 2015, pp 1-4, ISBN: 978-1-4799-6818-3/15.

Other International Conferences

- Ramji .K, **Sneekhalatha U** Synthesis and Characterization of Graphene Oxide -SnO₂ – TiO₂ Ternary Nanocomposite in prediction of Acetone gas in the evaluation of Diabetes Mellitus. 4th International conference on Nanoscience and Nanotechnology, SRM University, Kattankulathur, Accepted may 2017.

National Conferences Publications

- Shamila Rachel, **U.Snekhaltha**, Vedhasorubini, “Speech signal classification of Normal and Dysphonia based on feature extraction using back propagation neural network” Research day presentation Feb 2017.

Work in progress

- K.Ramji, **U.Snekhaltha**, Uthvag (2019), Adsorption kinetics feature extraction from breathprint obtained by graphene based sensors for diabetes diagnosis
- Kavya, **U.Snekhaltha**, Palani Thanaraj Krishnan (2019). Automated image segmentation and classification of Autism and Normal children in Thermal imaging using SVM Classifier in comparison with Convolution Neural Network.
- **U.Snekhaltha**, Nilkanth Gupta, Dhivya T, Mahalakshmi R, Shantanu Patil (2019) Design of Hip Replacement Prosthesis using Finite Element analysis: A Comparative Study between Customized and Conventional implants.
- Ramji K, **U.Snekhaltha**. Hardware and software optimization of a portable e-nose system for the Assessment of breath print from chronic kidney disease patients
- Rajashankari, **U.Snekhaltha**, Rajalakshmi T (2020). Design and Development of Portable Automated Audiometer to assess the acoustic Threshold and speech perception level
- Kavya, **U.Snekhaltha** Palani Thanaraj Krishnan (2020). Deep learning techniques for Automated classification of Autism using Thermal imaging

Working Papers:

- Meghna Sampath, **U.Snekhaltha** Nelufer, Sakhshi, Sakshi Srivastava (2020), Automated segmentation and classification of Psoriasis using machine learning algorithm.
- **U.Snekhaltha**, Bhargavee Guhan. Sowmiya S, T.Rajalakshmi (2020). Automated segmentation and classification of Heel Fissure based on Thermal Imaging Processing.