Sugumaran V

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Google Scholar | *Scopus* | *Website*

EXPERIENCE SUMMARY (20+ Years)

- **18+ years** as a teaching faculty. Areas of proficiency are in applications of machine learning especially machine condition monitoring using tools like Artificial Neural Networks, Fuzzy logic, Data Mining and Support Vector Machines.
- Awarded Ph.D. for the research work on 'Machine Learning Approach to Fault Diagnosis of Roller Bearings'.
- **Published 180** refereed international journal papers. **Total number of publications 200+**.
- University **Gold medalist** in M.Tech.
- 2 years in TataFones with expertise in planning, scheduling and monitoring sub-contractor quality.
- Developed and maintained quality records to meet the requirements of ISO-9001 Certification.
- Authored a book and two book chapters
- No. of Patents filed: 20
- No. of Ph.Ds produced/Guided: 07
- H- Index 25 and I10 index 40 (as on 20.08.2018) source: Google scholar.

ACADEMIC QUALIFICATION

COURSE	INSTITUTE	UNIVERSITY	% Marks	YEAR OF PASSING
Ph.D.	Amrita School of Engineering	Amrita University, Coimbatore	I PhD from AMRITA	2008
M. Tech. - Production Engineering & System Technology	The National Institute of Engineering	Visweswaraiah Technological University, Belgaum	84.00 Gold Medal	2004
B.E. – Mechanical Engineering	Amrita Institute of Technology & Science	Bharathiar University, Coimbatore	74.00	1998
HSC	St. Joseph's Hr. Sec. School	State Board of Tamilnadu	84.00	1994
SSLC	St. Joseph's Hr. Sec. School	State Board of Tamil Nadu	84.25	1992

AREAS OF INTEREST

- Condition Monitoring & Fault Diagnosis,
- Automation, Instrumentation and Control
- Machine learning / Data mining in manufacturing and Mechanical Engineering

SOFTWARE SKILLS

Software

- C, AutoCAD
- MatLab 7.1
- LabVIEW 7 Express
- Macromedia Flash 5
- Oracle PL-SQL, Forms and reports

Tools

- Weka (data mining Tool)
- Matlab tools - Wavelet & Fuzzy toolbox
- Neuralyst (ANN tool)
- Captivate

PROFESSIONAL EXPERIENCE

Academic Experience

Associate Professor, VIT University, 01.06.2011 – till date

Assistant Professor-SG, SRM University, Kattankulathur, 24.08.2009 – 31.05.2011

Professor & Head, Sri Manakula Vinayagar Engineering College, Puducherry, 28.01.2009 – 23.08.2009

Assoc. Professor, Amrita School of Engineering, Coimbatore, 18.05.2000 – 24.01.2009

Industrial Experience

Executive – Production, TataFone, Palakkad 18.05.1998 – 15.05.2000

PATENTS (Intellectual Property India)

1. **V. Sugumaran**, Hemanth, Anish bhari, Piyush chasker, Method for tyre pressure monitoring system using machine learning, filed on 03 Sep 2013. (Appln. No: 3941/CHE/2013)

2. V. Sugumaran, Hemanth, Method for tyre pressure monitoring system using linear potentiometer filed on 07/01/2014. Patent file No: 63/CHE/2014.

3. **V. Sugumaran**, Hemanth, Method for tyre pressure monitoring system using Rotary potentiometer filed on 07/01/2014. Patent file No: 63/CHE/2014.

4. **V. Sugumaran**, Hemanth, Method for tyre pressure monitoring system using ultrasonic distance gauge sensor, filed on 28 February 2014 (Patent application No.: 1002/CHE/2014).

5. **V. Sugumaran**, A. Arjun and V.Vipin, Development of fault diagnosis system for bearings, filed on 04/07/2014. Patent file No: 3314/CHE/2014.

6. **V. Sugumaran**, Gibin, Method for condition monitoring system for single point cutting tool using vibration analysis, filed on 04/07/2014. Patent file No: 3314/CHE/2014.

7. **V. Sugumaran**, Sachin, Method for condition monitoring system for centrifugal pump vibration analysis, filed on 04/07/2014. Patent file No: 3314/CHE/2014.

8. **V. Sugumaran**, Sanath, Method for condition monitoring system for misfire detection in IC engine, filed on 04/07/2014. Patent file No: 3314/CHE/2014.

9. **V. Sugumaran**, R. Barathan, Mobile shadow parking, filed on 23/10/2014, Pat. File No: 5287/CHE/2014.

10. **V. Sugumaran**, Siju Abraham, Ameet Singh, Remote controlled air conditioning system of a passenger automobile through GSM, filed on 29/10/2015 (Patent application No.: 5835/CHE/2015)

11. **V. Sugumaran**, Siju Abraham, Ameet Singh, Automatic wiper lifting system for automobiles parked in hot conditions, filed on 29/10/2015 (Patent application No.: 5836/CHE/2015)

12. **V. Sugumaran**, Alok John, Universal float Switch, application number: 201641026964, ref. No.: E-2/2375/2016-CHE, filed on 8.8.2016.

13. **V. Sugumaran**, Mohamed, CP Karthikeyan, Submercible Pipe Aerator, application number: 201641036062, ref. No.: E-2/3153/2016-CHE, filed on 21.10.2016.

14. **V. Sugumaran**, Siju Abraham, Overload Protection system for load carrying vehicles, Application No:201741005643, ref. No.: E-2/411/2017-CHE filed on 17/02/2017.

15. **V. Sugumaran**, Siju Abraham, Abhi Srivastava, Shantanu gupta, Abhijeet singh raina, Automation of wet grinder, CBR No: 25632, Application No.:E-2/2335/2017-CHE (201741027565) filed on 03/08/2017.

16. **V. Sugumaran**, E. Akshay, Hemantha Kumar, Active MR Damper Control, CBR No.29222, Application No. 201741032388 (Ref. No.: E-2/2737/2017-CHE), filed on 13.09.2017.

17. **V. Sugumaran**, Neha, Ravina, Hemantha, Road profile on maps, CBR No.: 38105, Application No.: 201741044515 (Ref. No: E-2/3845/2017-CHE) filed on 12/12/2017.

18. **V. Sugumaran**, Pranav Nair, Tile testing device, CBR No. 4319, Application No. 201841005801 (Ref. No. E-2/503/2018-CHE) filed on 15.02.2018.

19. A. K. Ilavarasi, **V. Sugumaran**, Portable Balloon Shadow for Automobile Parking, CBR No. 32805, Application No. 201841043126 (Ref. No. E-2/3488/2018-CHE) filed on 16.11.2018.

CONSULTANCY

1. Consultancy - Training on Applied Hydraulics at Rane holdings limited, Chennai during 8-9 Aug 2015. (Ref. Mr. Boopendiran, Rane, +91-044-42237104)

2. Vibration analysis for machine in their factory, Kasthiyar Industry, Tutucorin, during 4-5, Sep 2015.(Ref. Mr. S. Ravi kumar, +91 -9444104214)

3. Fault diagnosis of centrifugal pump, HCL Technologies, Bengaluru, during 3-27, June 2017. (Ref. Mr. S. Mahesh, +91 -9739388016)

BOOK & CHAPTERS

1. **V. Sugumaran**, V. Muralidharan and Ravi C Teja, Instrumentation and Control Systems, University Science Press (2015), ISBN: 9789383828500, Pages: 559

2. VV Ramalingam, S Mohan, **V Sugumaran**, V Vani, B Rebecca Jeya Vadhanam, Multi-Core Computer Vision and Image Processing for Intelligent Applications, Controlling Prosthetic Limb Movements Using EEG Signals, IGI Global Publisher, 2016, 211 pages. (Book Chapter)

3. B Rebecca Jeya Vadhanam, S Mohan, **V Sugumaran**, V Vani, VV Ramalingam, Multi-Core Computer Vision and Image Processing for Intelligent Applications, Computer Vision Based Classification on Commercial Videos, IGI Global Publisher, 2016, 211 pages. (Book Chapter)

PUBLICATIONS (Scopus Author ID: 6701729993; orcid : 0000-0002-5323-6418)

Refereed International Journals (Selected Publications)

1. **Sugumaran V.**, Ramachandran K.I., Automatic rule learning using decision tree for fuzzy classifier in fault diagnosis of roller bearing, 2007, Mechanical Systems and Signal Processing,21, 5, pp.(2237-2247).

2. **Sugumaran V.**, Muralidharan V., Ramachandran K.I., Feature selection using Decision Tree and classification through Proximal Support Vector Machine for fault diagnostics of roller bearing, 2007, Mechanical Systems and Signal Processing,21, 2, pp.(930-942).

3. **Sugumaran V.**, Sabareesh G.R., Ramachandran K.I., Fault diagnostics of roller bearing using kernel based neighborhood score multi-class support vector machine, 2008, Expert Systems with Applications,34, 4, pp.(3090-3098).

4. Kumar R.A., **Sugumaran V.**, Gowda B.H.L., Sohn C.H., Decision tree: A very useful tool in analysing flow-induced vibration data, 2008, Mechanical Systems and Signal Processing,22, 1, pp.(202-216).

5. **Sugumaran V.**, Ajith Kumar R., Gowda B.H.L., Sohn C.H., Safety analysis on a vibrating prismatic body: A data-mining approach, 2009, Expert Systems with Applications,36, 3 PART 2, pp.(6605-6612).

6. Sakthivel N.R., **Sugumaran V.**, Babudevasenapati S., Vibration based fault diagnosis of monoblock centrifugal pump using decision tree, 2010, Expert Systems with Applications,37, 6, pp.(4040-4049).

7. Devasenapati S.B., **Sugumaran V.**, Ramachandran K.I., Misfire identification in a four-stroke four-cylinder petrol engine using decision tree, 2010, Expert Systems with Applications,37, 3, pp.(2150-2160).

8. Elangovan M., Ramachandran K.I., **Sugumaran V.**, Studies on Bayes classifier for condition monitoring of single point carbide tipped tool based on statistical and histogram features, 2010, Expert Systems with Applications,37, 3, pp.(2059-2065).

9. Indira V., Vasanthakumari R., **Sugumaran V.**, Minimum sample size determination of vibration signals in machine learning approach to fault diagnosis using power analysis, 2010, Expert Systems with Applications,37, 12, pp.(8650-8658).

10. Radhika S., Sabareesh G.R., Jagadanand G., **Sugumaran V.**, Precise wavelet for current signature in 3ϕsymbol IM, 2010, Expert Systems with Applications,37, 1, pp.(450-455).

11. Sakthivel N.R., **Sugumaran V.**, Nair B.B., Comparison of decision tree-fuzzy and rough set-fuzzy methods for fault categorization of mono-block centrifugal pump, 2010, Mechanical Systems and Signal Processing,24, 6, pp.(1887-1906).

12. Sakthivel N.R., **Sugumaran V.**, Nair B.B., Application of Support Vector Machine (SVM) and Proximal Support Vector Machine (PSVM) for fault classification of monoblock centrifugal pump, 2010, International Journal of Data Analysis Techniques and Strategies,2, 1, pp.(38-61).

13. Indira V., Vasanthakumari R., Sakthivel N.R., **Sugumaran V.**, Determination of sample size using power analysis and optimum bin size of histogram features, 2011, International Journal of Data Analysis Techniques and Strategies,3, 1, pp.(21-41).

14. Sakthivel N.R., Nair B.B., **Sugumaran V.**, Rai R.S., Decision support system using artificial immune recognition system for fault classification of centrifugal pump, 2011, International Journal of Data Analysis Techniques and Strategies,3, 1, pp.(66-84).

15. Muralidharan V., **Sugumaran V.**, Sakthivel N.R., Wavelet decomposition and support vector machine for fault diagnosis of monoblock centrifugal pump, 2011, International Journal of Data Analysis Techniques and Strategies,3, 2, pp.(159-177).

16. Elangovan M., **Sugumaran V.**, Ramachandran K.I., Ravikumar S., Effect of SVM kernel functions on classification of vibration signals of a single point cutting tool, 2011, Expert Systems with Applications,38, 12, pp.(15202-15207).

17. Indira V., Vasanthakumari R., Sakthivel N.R., **Sugumaran V.**, A method for calculation of optimum data size and bin size of histogram features in fault diagnosis of mono-block centrifugal pump, 2011, Expert Systems with Applications,38, 6, pp.(7708-7717).

18. **Sugumaran V.**, Ramachandran K.I., Fault diagnosis of roller bearing using fuzzy classifier and histogram features with focus on automatic rule learning, 2011, Expert Systems with Applications,38, 5, pp.(4901-4907).

19. **Sugumaran V.**, Ramachandran K.I., Effect of number of features on classification of roller bearing faults using SVM and PSVM, 2011, Expert Systems with Applications,38, 4, pp.(4088-4096).

20. Ravikumar S., Ramachandran K.I., **Sugumaran V.**, Machine learning approach for automated visual inspection of machine components, 2011, Expert Systems with Applications,38, 4, pp.(3260-3266).

21. Saimurugan M., Ramachandran K.I., **Sugumaran V.**, Sakthivel N.R., Multi component fault diagnosis of rotational mechanical system based on decision tree and support vector machine, 2011, Expert Systems with Applications,38, 4, pp.(3819-3826).

22. Kumar H., Ranjit Kumar T.A., Amarnath M., **Sugumaran V.**, 887. Fault diagnosis of antifriction bearings through sound signals using Support Vector Machine, 2012, Journal of Vibroengineering,14, 4, pp.(1601-1606).

23. Muralidharan V., **Sugumaran V.**, A comparative study of Naïve Bayes classifier and Bayes net classifier for fault diagnosis of monoblock centrifugal pump using wavelet analysis, 2012, Applied Soft Computing Journal,12, 8, pp.(2023-2029).

24. Sakthivel N.R., **Sugumaran V.**, Nair B.B., Automatic rule learning using roughset for fuzzy classifier in fault categorization of mono-block centrifugal pump, 2012, Applied Soft Computing Journal,12, 1, pp.(196-203).

25. Sakthivel N.R., Nair B.B., **Sugumaran V.**, Soft computing approach to fault diagnosis of centrifugal pump, 2012, Applied Soft Computing Journal,12, 5, pp.(1574-1581).

26. Sakthivel N.R., Nair B.B., **Sugumaran V.**, Roy R.S., Application of standalone system and hybrid system for fault diagnosis of centrifugal pump using time domain signals and statistical features, 2012, International Journal of Data Mining, Modelling and Management,4, 1, pp.(74-104).

27. **Sugumaran V.**, Jain D., Amarnath M., Kumar H., Fault diagnosis of helical gear box using decision tree through vibration signals, 2013, International Journal of Performability Engineering,9, 2, pp.(221-233).

28. Muralidharan V., **Sugumaran V.**, Selection of discrete wavelets for fault diagnosis of monoblock centrifugal pump using the J48 algorithm, 2013, Applied Artificial Intelligence,27, 1, pp.(1-19).

29. Jegadeeshwaran R., **Sugumaran V.**, Comparative study of decision tree classifier and best first tree classifier for fault diagnosis of automobile hydraulic brake system using statistical features, 2013, Measurement: Journal of the International Measurement Confederation,46, 9, pp.(3247-3260).

30. Muralidharan V., **Sugumaran V.**, Feature extraction using wavelets and classification through decision tree algorithm for fault diagnosis of mono-block centrifugal pump, 2013, Measurement: Journal of the International Measurement Confederation,46, 1, pp.(353-359).

31. Muralidharan V., **Sugumaran V.**, Rough set based rule learning and fuzzy classification of wavelet features for fault diagnosis of monoblock centrifugal pump, 2013, Measurement: Journal of the International Measurement Confederation,46, 9, pp.(3057-3063).

32. Amarnath M., **Sugumaran V.**, Kumar H., Exploiting sound signals for fault diagnosis of bearings using decision tree, 2013, Measurement: Journal of the International Measurement Confederation,46, 3, pp.(1250-1256).

33. Muralidharan V., **Sugumaran V.**, Indira V., Fault diagnosis of monoblock centrifugal pump using SVM, 2014, Engineering Science and Technology, an International Journal,17, 3, pp.(152-157).

34. Painuli S., Elangovan M., **Sugumaran V.**, Tool condition monitoring using K-star algorithm, 2014, Expert Systems with Applications,41, 6, pp.(2638-2643).

35. Sakthivel N.R., Nair B.B., Elangovan M., **Sugumaran V.**, Saravanmurugan S., Comparison of dimensionality reduction techniques for the fault diagnosis of mono block centrifugal pump using vibration signals, 2014, Engineering Science and Technology, an International Journal,17, 1, pp.(30-38).

36. Kumar H., Ranjit Kumar T.A., Amarnath M., **Sugumaran V.**, Fault diagnosis of bearings through vibration signal using Bayes classifiers, 2014, International Journal of Computer Aided Engineering and Technology,6, 1, pp.(14-28).

37. Jegadeeshwaran R., **Sugumaran V.**, Soman K.P., Vibration based fault diagnosis of a hydraulic brake system using Variational Mode Decomposition (VMD), 2014, SDHM Structural Durability and Health Monitoring,10, 1, pp.(81-97).

38. Sharma A., **Sugumaran V.**, Babu Devasenapati S., Misfire detection in an IC engine using vibration signal and decision tree algorithms, 2014, Measurement: Journal of the International Measurement Confederation,50, 1, pp.(370-380).

39. Jegadeeshwaran R., **Sugumaran V.**, Brake fault diagnosis using Clonal Selection Classification Algorithm (CSCA) – A statistical learning approach, 2015, Engineering Science and Technology, an International Journal,18, 1, pp.(14-23).

40. Indira V., Vasanthakumari R., Jegadeeshwaran R., **Sugumaran V.**, Determination of minimum sample size for fault diagnosis of automobile hydraulic brake system using power analysis, 2015, Engineering Science and Technology, an International Journal,18, 1, pp.(59-69).

41. Jegadeeshwaran R., **Sugumaran V.**, Health monitoring of a hydraulic brake system using nested dichotomy classifier – A machine learning approach, 2015, International Journal of Prognostics and Health Management,6, 1, pp.(1-10).

42. Praveen H.M., **Sugumaran V.**, Harvesting vertical vibration of automotive tyre to monitor tyre pressure using applied machine learning technique, 2015, International Journal of Applied Engineering Research,10, 14, pp.(34501-34508).

43. Jegadeeshwaran R., **Sugumaran V.**, Fault diagnosis of automobile hydraulic brake system using statistical features and support vector machines, 2015, Mechanical Systems and Signal Processing,52-53, 1, pp.(436-446).

44. Satishkumar R., **Sugumaran V.**, Remaining useful life time prediction of bearing using Naïve Bayes and Bayes net classifiers, 2015, International Journal of Applied Engineering Research,10, 14, pp.(34527-34531).

45. Satishkumar R., **Sugumaran V.**, Remaining life time prediction of bearings through classification using decision tree algorithm, 2015, International Journal of Applied Engineering Research,10, 14, pp.(34861-34866).

46. Shalet K.S., **Sugumaran V.**, Jegadeeshwaran R., Elangovan M., Condition monitoring of single point cutting tool using arma features and SVM classifiers, 2015, International Journal of Applied Engineering Research,10, 3, pp.(8401-8416).

47. Muralidharan A., **Sugumaran V.**, Soman K.P., Amarnath M., Fault diagnosis of helical gear box using variational mode decomposition and random forest algorithm, 2015, SDHM Structural Durability and Health Monitoring,10, 1, pp.(55-80).

48. Elangovan M., Sakthivel N.R., Saravanamurugan S., Nair B.B., **Sugumaran V.**, Machine learning approach to the prediction of surface roughness using statistical features of vibration signal acquired in turning, 2015, Procedia Computer Science,50, , pp.(282-288).

49. Rebecca Jeya Vadhanam B., Mohan S., **Sugumaran V.**, Vani V., Ramalingam V.V., Computer vision based classification on commercial videos, 2016, Multi-Core Computer Vision and Image Processing for Intelligent Applications,, , pp.(105-135).

50. Ramalingam V.V., Mohan S., **Sugumaran V.**, Vani V., Rebecca Jeya Vadhan B., Controlling prosthetic limb movements using EEG signals, 2016, Multi-Core Computer Vision and Image Processing for Intelligent Applications,, , pp.(211-233).

51. Rajesh Kanna K., **Sugumaran V.**, Vijayaram T.R., Karthikeyan C.P., Activities of daily life (ADL) recognition using wrist-worn accelerometer, 2016, International Journal of Engineering and Technology,8, 3, pp.(1406-1413).

52. Shankar Sowmien V., **Sugumaran V.**, Karthikeyan C.P., Vijayaram T.R., Diagnosis of hepatitis using decision tree algorithm, 2016, International Journal of Engineering and Technology,8, 3, pp.(1414-1419).

53. Sakthivel N.R., Saravanamurugan S., Nair B.B., Elangovan M., **Sugumaran V.**, Effect of kernel function in support vector machine for the fault diagnosis of pump, 2016, Journal of Engineering Science and Technology,11, 6, pp.(826-838).

54. Joshuva A., **Sugumaran V.**, Fault diagnostic methods for wind turbine: A review, 2016, ARPN Journal of Engineering and Applied Sciences,11, 7, pp.(4654-4668).

55. Rebecca Jeya Vadhanam B., Mohan S., **Sugumaran V.**, Application of artificial immune recognition system for identification of Advertisement video frames using BICC features, 2016, Indian Journal of Science and Technology,9, 14, pp.(-).

56. Ramalingam V.V., Mohan S., **Sugumaran V.**, Prosthetic arm control using Clonal Selection Classification Algorithm (CSCA) - a statistical learning approach, 2016, Indian Journal of Science and Technology,9, 16, pp.(-).

57. Satishkumar R., **Sugumaran V.**, Vibration based health assessment of bearings using Random forest classifier, 2016, Indian Journal of Science and Technology,9, 10, pp.(-).

58. Satishkumar R., **Sugumaran V.**, Estimation of remaining useful life of bearings based on Support Vector Regression, 2016, Indian Journal of Science and Technology,9, 10, pp.(-).

59. Satishkumar R., **Sugumaran V.**, Estimation of remaining useful life of bearings based on nested dichotomy classifier - a machine learning approach, 2016, International Journal of Engineering and Technology,8, 1, pp.(339-349).

60. Muralidharan V., **Sugumaran V.**, SVM-based wavelet selection for fault diagnosis of monoblock centrifugal pump, 2016, International Journal of Data Analysis Techniques and Strategies,8, 4, pp.(357-369).

61. Bahri A., **Sugumaran V.**, Jegadeeshwaran R., Devasenapati S.B., Misfire detection in spark-ignition engine using statistical learning theory, 2016, International Journal of Performability Engineering,12, 1, pp.(79-88).

62. Kumar H., **Sugumaran V.**, Amarnath M., Fault diagnosis of bearings through sound signal using statistical features and bayes classifier, 2016, Journal of Vibrational Engineering and Technologies,4, 2, pp.(87-96).

63. Gajre M.N., Jegadeeshwaran R., **Sugumaran V.**, Talbar A., Vibration based fault diagnosis of automobile hydraulic brake system using fuzzy logic with best first tree rules, 2016, International Journal of Vehicle Structures and Systems,8, 4, pp.(214-218).

64. Mohanaraman P., Balamurugamohanraj G., Vijaiyendiran K., Sugumaran V., Prediction of surface roughness based on machining condition and tool condition in boring EN31 steel, 2016, International Journal of Engineering and Technology,8, 2, pp.(1223-1228).

65. Rebecca Jeya Vadhanam B., Mohan S., **Sugumaran V.**, Ramalingam V.V., Exploiting BICC features for classification of advertisement videos using RIDOR algorithm, 2017, Proceedings - 2016 International Conference on Micro-Electronics and Telecommunication Engineering, ICMETE 2016,, , pp.(247-252).

66. Joshuva A., **Sugumaran V.**, Classification of various wind turbine blade faults through vibration signals using hyperpipes and voting feature intervals algorithm, 2017, International Journal of Performability Engineering,13, 3, pp.(247-258).

67. Joshuva. A., **Sugumaran. V.**, A data driven approach for condition monitoring of wind turbine blade using vibration signals through best-first tree algorithm and functional trees algorithm: A comparative study, 2017, ISA Transactions,67, , pp.(160-172).

68. Prasanna Lakshmi G., Helen Santhi M., **Sugumaran V.**, Vibration test on RCC C slab bridge model for condition monitoring, 2017, International Journal of Civil Engineering and Technology,8, 3, pp.(1034-1042).

69. Joshuva A., **Sugumaran V.**, A comparative study of Bayes classifiers for blade fault diagnosis in wind turbines through vibration signals, 2017, SDHM Structural Durability and Health Monitoring,12, 1, pp.(69-90).

70. Anoop P.S., **Sugumaran V.**, Classifying machine learning features extracted from vibration signal with logistic model tree to monitor automobile tyre pressure, 2017, SDHM Structural Durability and Health Monitoring,11, 2, pp.(191-208).

71. Satishkumar R., **Sugumaran V.**, Remaining life time prediction of bearings using K-star algorithm – a statistical approach, 2017, Journal of Engineering Science and Technology,12, 1, pp.(168-181).

72. Pranesh S.K., Abraham S., **Sugumaran V.**, Amarnath M., Fault diagnosis of helical gearbox using acoustic signal and wavelets, 2017, IOP Conference Series: Materials Science and Engineering,197, 1, pp.(-).

73. Sharma R.K., **Sugumaran V.**, Kumar H., Amarnath M., Condition monitoring of roller bearing by K-star classifier and K-nearest neighborhood classifier using sound signal, 2017, SDHM Structural Durability and Health Monitoring,12, 1, pp.(1-16).

74. Alamelu Manghai T.M., Jegadeeshwaran R., **Sugumaran V.**, Brake fault diagnosis through machine learning approaches - A review, 2017, SDHM Structural Durability and Health Monitoring,12, 1, pp.(43-67).

75. Gangadhar N., Kumar H., Narendranath S., **Sugumaran V.**, Condition monitoring of single point cutting tools based on machine learning approach, 2018, International Journal of Acoustics and Vibrations,23, 2, pp.(131-137).

76. Senthil Kumar P., Sridhar Babu B., **Sugumaran V.**, Comparative modeling on surface roughness for roller burnishing process, using fuzzy logic, 2018, International Journal of Mechanical and Production Engineering Research and Development,8, 1, pp.(43-64).

77. Joshuva A., **Sugumaran V.**, A study of various blade fault conditions on a wind turbine using vibration signals through histogram features, 2018, Journal of Engineering Science and Technology,13, 1, pp.(102-121).

78. Alamelu Mangai M., Jegadeeshwaran R., **Sugumaran V.**, Vibration based condition monitoring of a brake system using statistical features with logit boost and simple logistic algorithm, 2018, International Journal of Performability Engineering,14, 1, pp.(1-8).

79. Manju B.R., Joshuva A., **Sugumaran V.**, A data mining study for condition monitoring on wind turbine blades using hoeffding tree algorithm through statistical and histogram features, 2018, International Journal of Mechanical Engineering and Technology,9, 1, pp.(1061-1079).

80. Aravinth, S., **Sugumaran, V.**, Air compressor fault diagnosis through statistical feature extraction and random forest classifier, 2018, Progress in Industrial Ecology, 12(1-2), pp. (192-205).

81. Joshuva, A., **Sugumaran, V.**, A machine learning approach for condition monitoring of wind turbine blade using autoregressive moving average (ARMA) features through vibration signals: A comparative study, 2018, Progress in Industrial Ecology 12(1-2), pp. (14-34).

82. Mulay, S., **Sugumaran, V.**, Babu Devasenapati, S., Misfire detection in I.C. engine through ARMA features using machine learning approach, 2018, Progress in Industrial Ecology 12(1-2), pp. (93-111).

International Conferences

1. **V. Sugumaran**, G.R. Sabareesh and K.I. Ramachandran, "Fault diagnosis of taper roller bearing through histogram features and proximal support vector machines", IEEE Conference ICSIP2006, Hubli. (Refereed)

2. **V. Sugumaran**, Sachin kulkarni and K.I. Ramachandran, "Fault diagnostics of roller bearing using single-shot multi-class support vector machine", ICIT 2006, International Conference on Industrial Tribology, Indian Institute of Science, Bangalore. (Refereed)

3. **V. Sugumaran**, G.R. Sabareesh and K.I. Ramachandran, "A Comparative Study of Various Classifiers Using Histogram Features For Fault Diagnostics of Taper Roller Bearing", ICIT 2006, IISc, Bangalore. (Refereed).

4. **V. Sugumaran**, P.M. Anil, J. Dinesh and C. Giridhar Prasad, "Defect Diagnostic system for steel castings using Neural Networks", Emerging Technologies in Intelligent System and Control (EISCO-2005), Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India, pp. 346-352.

5. **V. Sugumaran**, V. Sethuraman, G. S. Saravanan and N. Thirunavukarasu, "Online Hardness measurement - A Noval Approach", (EISCO-2005), Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India. (16-01-2004), pp. 270-275.

6. **V. Sugumaran**, S. Karthick, H. Jayaram and M. Vinoth, "Tele-operated remote sensing robot", (EISCO-2005), Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India. (16-01-2004), pp. 218-223.

7. M. Sivadhayanithy, **V. Sugumaran** and S.S. Bhagawan, "Prediction of Mechanical Properties of Polymers Using Artificial Neural Network", APT-2004, Cochin university of Science and Technology, Kerala, India.

8. Ganesan K., **V.Sugumaran**, Mohemad Ismail, and P.V.Mohanram, "Knowledge based system for tolerance assignment", Proceedings of International conference on Advances in materials, Product Design and Manufacturing systems, ICPME 2005, Bannari Amman Institute of Technology, Sathy, 12-14, Dec 2005, pp 718-724.

9. Babu Devasenapati.S, Ramachandran.K.I, and **Sugumaran.V**, 'Evaluation of Statistical and Histogram Features for Misfire Detection in a Four Stroke Petrol Engine using Support Vector Machines' WSC 2008 Online World Conference on Soft Computing in Industrial Applications, 10th – 21st of November 2008, Online Conference on the Internet.

10. Babu Devasenapati.S, Ramachandran.K.I, and **Sugumaran.V**, 'Misfire Detection In A Four Stroke Petrol Engine Using Histogram Features And Enrtropy Based Decision Tree', International Conference on Recent Trends in Materials and Mechanical Engineering (ICMME2008), 18 - 20 December 2008, Dr. Mahalingam College of Engineering And Technology and University of Manitoba, Canada.

11. M. Elangovan, Ramachandran.K.I, and **Sugumaran.V**, 'Bayes Net Classifier For Condition Monitoring of Single Point Carbide Tipped Tool', International Conference on Recent Trends in Materials and Mechanical Engineering (ICMME2008), 18 - 20 December 2008, Dr. Mahalingam College of Engineering And Technology and University of Manitoba, Canada.

12. M. Saimurugan, Ramachandran.K.I, and **Sugumaran.V**, 'Support vector machine based fault diagnosis of rotating mechanical system', International Conference on Recent Trends in Materials and Mechanical Engineering (ICMME2008), 18 - 20 December 2008, Dr. Mahalingam College of Engineering And Technology and University of Manitoba, Canada.

13. Elangovan M., **Sugumaran V.**, and Ramachandran K.I, 'Monitoring of Single Point Cutting Tool: A Data Mining Approach', International Conference on Operation Research applications in Engineering and Management (ICOREM), May 27-29, 2009, Anna University, Tiruchirappalli, India.

14. Sakthivel N. R., **Sugumaran V**, Mohammed Arsath M.I., and Vivin R., 'Automatic Rule Learning using Decision Tree for Fuzzy Classifier in Fault Categorization of Mono-Block Centrifugal Pump', International Conference on Operation Research applications in Engineering and Management (ICOREM), May 27-29, 2009, Anna University, Tiruchirappalli, India.

15. Saimurugan M., **Sugumaran V.**, and Ramachandran K.I, 'Machine Learning Approach to Fault Diagnosis of Rotational Mechanical System', International Conference on Operation Research applications in Engineering and Management (ICOREM), May 27-29, 2009, Anna University, Tiruchirappalli, India.

16. Balamuruga Mohan Raj. G and **V. Sugumaran**, 'Tool Life Improvement By Selecting The Tool Based on Workpiece Hardness – A Noval Approach', ICAMB 2009, Dec 14 – 16, 2009, pp. 946-949, VIT University, Vellore.

17. V. Indira, R.Vasanthakumari, **V.Sugumaran**, Optimum Data Size for Fault Diagnosis of Bearings, ICAMB 2009, Dec 14 – 16, 2009, pp.207-211, VIT University, Vellore.

18. V. Indira, R.Vasanthakumari, **V. Sugumaran**, Minimum Sample Size determination in Machine Learning Approach to Fault Diagnosis Using Power Analysis and Entropy Measure of Vibration Signals, ICAMB 2009, Dec 14 – 16, 2009, pp.212-216, VIT University, Vellore.

19. Bala Muruga Mohanraj. G, **Sugumaran. V**, Prediction of Surface Roughness in Boring Operation By Linear Regression Analysis, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 262- 267.

20. Muralidharan V, **Sugumaran V**, Selection of Wavelets for Fault Diagnosis of Monoblock Centrifugal pumpusing J48 Algorithm, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 594- 600.

21. Muralidharan V, **Sugumaran V**, Study of Cascading Effect of Classifiers and its Effect on Performance for Fault Diagnosis, 2nd International Conference on Simulation Modeling and Analysis COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 601- 606.

22. Bala Muruga Mohanraj. G, **V Sugumaran**, Surface Roughness Prediction Model Taking Machine Condition intoAccount – A Neural Network Approach, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 606-612.

23. V Indira, R Vasanthakumari, **V Sugumaran**, Sample Size Determination for Auto Regressive Features of EEG Signals in Machine Learning Approach Using Power Analysis, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 613-619.

24. Ashwin Candade, **V. Sugumaran**, S. Shashi Kumar, Study of Effect of Jatropha Bio-Diesel on Engine Vibrations, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 620-624.

25. Elangovan Mahadevan, Ramachandran K.I, **Sugumaran V**, Tool Wear Classification using Statistical Features and Fuzzy classifier in Turning, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 625-630.

26. Siddharth Sridhar, Muralidharan V and **Sugumaran V**, Condition Assessment of Robots in Flexible Assembly System, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 637-641.

27. N.R.Sakthi Vel, **Sugumaran V** and Binoy B. Nair, Application of Naïve Bayes and Decision Tree for Fault Classification of Monoblock Centrifugal Pump, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 642-645.

28. N.R.Sakthi Vel, **Sugumaran V** and Binoy B. Nair, Fuzzy classification approach to fault diagnosis of Monoblock centrifugal pump using histogram features, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 646-651.

29. Elangovan M, Ramachandran K.I, **Sugumaran V**, Condition Monitoring of Single Point Cutting Tool using Discrete Wavelet Transform and Classification using Bayes Functions, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 652-652.

30. **V. Sugumaran** and Ramachandran K.I, Fault diagnosis of roller bearings using stationary wavelet transforms –Theory Vs Practice, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 653- 659.

31. Sanjaya Kumar Kar, **Sugumaran V**, Studies on Gradual Wear and Vibration of Roller Bearings using Support Vector Regression, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 660- 662.

32. **V. Sugumaran**, Voice Controlled Wheelchair Navigation Using Wavelet and Support Vector Machine, 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105, pp. 707-711.

33. Purushothaman G, **Sugumaran V** and Dhanalakshmi. G, Modeling of Auditory Brainstem Response for Evaluation of Auditory System, 2nd International Conference on Simulation Modeling and Analysis COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105.pp. 712-717.

34. V Indira, R Vasanthakumari, **V Sugumaran**, Sample Size Determination for the Auditory System with Auditory Brainstem Response using Power Analysis, 2nd International Conference

on Simulation Modeling and Analysis - COSMA 2011, 14-16 December 2011,Amrita School of Engineering, Coimbatore 641 105.pp. 718-724.

National Conferences

1. S. Senthil velan, **V. Sugumaran**, and M. K. Prabakaran, "Expert system for synthesis of mechanism", National conference on computer integrated design and manufacturing, 2001, Amrita institute of technology and science, Coimbatore, pp. 227-232.

2. **V. Sugumaran**, M. K. Prabakaran, "Expert system for non-traditional machining", Proceedings of National conference MOSIM, 28 December 2002, Annamalai University, Chidhambaram.

3. M. Sivadhayanithy, **V. Sugumaran**, K. Ganesan and L. Ravikumar, "Material selection of polymers for electrical engineering applications using neural networks", 2nd National conference on computer integrated manufacturing, 2003, Amrita institute of technology and science, Coimbatore, pp. 202-207.

4. **V. Sugumaran**, M. Sivadhayanithy, M. Pushparajan and L. Ravikumar, "Computer aided material selection of polymers – An ANN approach", 2nd National conference on computer integrated manufacturing, 2003, Amrita institute of technology and science, Coimbatore, pp. 202-207.

5. Sivadhayanithy M., **Sugumaran V.**, Ganesan K. and Ravikumar L., "Intelligent Selection Process of Engineering Thermo Plastics", Proceedings of National Symposium on Engineering Polymers: Applications and Technology- (EPAT 2003),December 18 - 19, 2003, Amrita Institute of Technology, Coimbatore,

6. M. Deepak kumar, R. Ranjenth kumar, G. Balasubramanian, G. Kathirvel and **Sugumaran V**, "Tool wear monitoring using low cost current sensor", Proc. of 1st national conference on development and challenges in manufacturing engineering-2004, Manipal institute of technology, (MAHE), Manipal, pp. 495-500.

7. Velumani A., Ganesan K. and **Sugumaran V.**, "Importance of Industrial Training in Engineering Curriculum" Proceedings of the Institution of Engineering Mechanical Engineering Division Annual Convention and National Seminar on Recent Trends in Mechanical Engineering, National Institute of Technology, Kurushtra March 29-30, 2005, pp.441-447.

8. S. Nithin kumar, P. Prabhu, S. Prabhakar and **V. Sugumaran**, "Neuro-statistical fault diagnosis of ball bearing assembly", National conference on advances in engineering design, 29-30 April 2005, Bannari amman institute of technology, sathyamangalam, pp. 776-782.

9. V. Muralidharan and **V. Sugumaran**, "Design theory and data correlation for milk-water combination through plate heat exchangers, National conference on advances in engineering design, 29-30 april 2005, Bannari amman institute of technology, sathyamangalam, pp. 776-782.

REVIEWER – International Journal

1. Applied Mathematical Modeling, an Elsevier Publication, U.K.,

2. Proceedings of the Institution of Mechanical Engineers, Part G, Journal of Aerospace Engineering,

3. Proceedings of the Institution of Mechanical Engineers, Part C, Journal of Mechanical Engineering Science,
4. Proceedings of the Institution of Mechanical Engineers, Part I, Journal of Systems and Control Engineering
5. Proceedings of the Institution of Mechanical Engineers, Part B, Journal of Engineering Manufacture
6. Artificial Intelligence in Medicine, an Elsevier Publication, U.K.
7. Fuzzy information and Engineering, Springer publication, UK.
8. Proceedings of the Institution of Mechanical Engineers, Part H, Journal of Engineering in Medicine.
9. International Journal of Engineering, Science and Technology (IJEST)

RESOURCE PERSON

- Delivered a lecture on "Principles of low cost automation" on 29, November 2003 for a faculty development program conducted by Sri Krishna college of Engineering and Technology, Coimbatore.
- Delivered a lecture on "AI tools for Maintenance" for an AICTE-ISTE sponsored STTP to Engineering college teachers conducted by Amrita School of Engineering, Coimbatore.
- Invited Speaker for the AICTE-ISTE sponsored STTP on "Recent development in simulation, Modeling and their applications to modern manufacturing practice" conducted during March 26 to 31, 2007.
- Dlivered a lecture on "Structural Health Monitoring – A Machine Learning Approach", one day workshop on Structural Health Monitoring and Rehabilitation of Structures conducted by Karunya University, Coimbatore on 29.09.2018.

INVITED TALK & SESSION CHAIR

- Delivered a Invited lecture on "Mechanical systems and signal processing - A machine learning approach" during Dec. 14-16, 2011 in 2nd International Conference on Simulation Modeling and Analysis - COSMA 2011, Amrita School of Engineering, Coimbatore.
- Session chair for two machine learning tracks in first International Conference on Intelligent Computing, ICIC 2018, Conducted by Department of Computer Science and Engineering,Amrita Vishwa Vidyapeetham, Bangaluru, India.

AWARDS

Listed member of **'whos who in science and Engineering'** and **'whos who in the world 2009'** (Morquis). **'leading scientists of the world 2008'**, **'International scientist of the year 2008'**, **'2000 outstanding scientists 2008/2009'**, **'IBC Foremost Educators of the World-2008'** and **'Top 100 Scientists 2008'** by International biographical centre (IBC), Cambridge, England.

COURSE ATTENDED

MONTH/YEAR	COURSE	ORGANIZED BY
Mar 2012	Modeling, simulation and real time implementation of control systems using LabVIEW	SRM University. Chennai
Sep 2011	Mathematical transforms explore and innovate	VIT, Chennai
2007	Machine condition monitoring & Fault diagnosis	IIT, Chennai
Dec 2004	Fourier Transform wavelet transform & application	IIT, Chennai
Nov 2004	An introductory course in DSP	Amrita, Coimbatore
May 2003	Dimensional Engineering and tolerance analysis	R.E.C. Trichy
Oct 2000	Teaching effectiveness index-improvement techniques	M. A. Engg. College, Kerala

RESEARCH GUIDANCE

Name of the Scholar	Research Area	University
Dr. N. R. Sakthivel	Fault diagnosis of centrifugal pump	Karpagam University (Completed)
Dr. V. Indira	Determination of sample size	Karpagam University (Completed)
Dr. G.B.M. Mohanraj	Optimum tool selection & surface roughness prediction	Karpagam University (Completed)
Dr. V. Muralidharan	Wavelet analysis of pump vibration signals	Karpagam University (Completed)
Dr. R. Satish kumar	Remaining life time assessment of roller bearings	VIT University (Completed)
Dr. Jejadeeshwaran	Fault diagnosis of brake system	VIT University (completed)
Dr. A. Joshuva	Wind turbine fault diagnosis	VIT University (Completed)
Mr. S. Aravinth	Fault diagnosis of reciprocating compressor	VIT University
Mr. Anoop	Tyre pressure Monitoring	VIT University

WORKSHOP ORGANIZED

1. One day workshop on 'Wavelet for Mechanical Engineers' on 28 March 2014 along with Dr. R. Jegadeeshwaran in VIT University, Chennai Campus. Also the resource person for all the sessions.

2. A national level workshop on 'Machine Learning for Mechanical Engineers' (learning from vibration data) on 25 Feb 2012 sponsored by national instruments conducted in VIT University, Chennai Campus.

3. Organized a two days workshop for Robotics club on 'Haptics Robotics' Aug 27-28 2011 by Microsoft robotics user group India.

4. Organized a one day workshop for Robotics club on 'Basic Voice Processing for Robotic Applications with Hands-on' Oct 15 2011 by Dr Nayemulla khan.

5. Organized a webinar from National Instruments on 'Basics of Labview Programming for Robotics' on 11 April 2012.

6. Organized a webinar from National Instruments on 'Advanced Labview Programming for Robotics' on 18 April 2012.

7. Organized a short term course (2 weeks) on 'Pattern Recognition' in Amrita Vishwa Vidyapeetham, Coimbatore during April 2004.

8. Organized a short term course (2 weeks) on 'Microcontrollers for Mechanical Engineers' in Amrita Vishwa Vidyapeetham, Coimbatore during May 2005 (Resource person: Dr. T. R. Padmanabhan).

9. Organized a short term course (1 week) on 'PLC' in Amrita Vishwa Vidyapeetham, Coimbatore during Jan 2006 (Resource person: Dr. T. R. Padmanabhan).

ADMIN ROLES & EXTENSION ACTIVITIES

1. Founder **HOD of Department of Mechanical Engineering** at sri Manakula Vinayagar Engineering College, Madagadi pet, Puducherry, and established CAD lab, Machines Lab.

2. Established **Mechatronics lab** in SRM university, Kattangulathur, Chennai during 2009-11.

3. **Executive Editor** - Amritarpan, University quarterly news letter of Amrita Vishwa vidyapeetham, Coimbatore, for 3 Years.

4. **Faculty warden** in Boys hostel for about 5 Years from 2005-09 in Amrita Vishwa vidyapeetham, Coimbatore.

5. **Member IPC** (Intellectual Property Cell) in VIT University, Chennai Campus from 2015-18.

6. **ABET coordinator**: Responsible for the high level study of various accreditation criteria and coordinating with the peers in preparing the relevant documents (SSR Preparation and audit coordination for Mechanical Engineering program at Chennai campus).

7. **Research Admission coordinator**:Responsible for smooth conduct of written test, Interview and selection of research scholars for the school of Mechanical and Building Sciences from 2012 to 2016 & 2018 to till date.

8. **Coordinator-Peer Learning**: Responsible for smooth conduct and documentation of peer learning activity of the school, VIT University, Chennai campus, 2018.

9. **Chairman - ReFAT Committee**: Responsible for smooth conduct of scrutiny and appropriate recommendation for re-appearing in exam, VIT University, Chennai campus, 2018.

10. **Member - Disciplinary committee:**Responsible for University level smooth conduct of inquiry and recommend suitable actions for studentsVIT University, Chennai campus.

11. **Chairman - Malpractice committee:**Responsible for University level smooth conduct of inquiry and find the truth and act of malpractice and recommend suitable actions for students VIT University, Chennai campus, (2017-18).

12. **Member - Malpractice committee:**Responsible for smooth conduct of inquiry and find the truth and act of malpractice and recommend suitable actions for students VIT University, Chennai campus, (2015-17).

13. **Coordinator-IQAC:**Responsible for collection of documents and conduct of Internal as well as external IQAC audits during 2012-15, VIT University, Chennai campus.

14. **Coordinator-SET Conference:**Responsible for smooth conduct of National conference on Science, Engineering and Technology, VIT University, Chennai campus, 2015.