Dr. M.Vijayakarthick
Assistant Professor, Department of Instrumentation Engineering

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                        Chitlapakkam, Chennai 600064

Present Position

Assistant Professor, Department of Instrumentation Engineering, Madras Institute of Technology, Anna University, Chennai from February-2018.

Previous Positions

➢ From February 2018 – Till date as Assistant Professor of Department of Instrumentation Engineering, Madras Institute of Technology, Anna University, Chennai.

➢ From October 2007 – October 2018 as Assistant Professor of Department of Electronics and Instrumentation Engineering, Faculty of Engineering and Technology, Annamalai University, Electronics and Instrumentation Engineering, Faculty of Engineering and Technology, Annamalai University, Annamalai Nagar.

➢ From October 2002 – October 2007 as Lecturer in Department of Electronics and Instrumentation Engineering, Faculty of Engineering and Technology, Annamalai University, Annamalainagar.

Degree

❖ M.E. in Process Control and Instrumentation Engineering, Annamalai University (2004 - 2007).

❖ B.E. in Electronics and Instrumentation Engg. , Annamalai University (1998 - 2002).

Research Degree

❖ Ph.D. in process control from Instrumentation Engineering, Annamalai University (2008 - 2013).
Title: Experimental Evaluation of Repetitive Control Strategies for a class of nonlinear
systems
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Area of Specialisation

➢ Process Control

➢ Mathematical Modelling

Membership in Professional Organization

- ➤ Member, IEEE

Research Guidance

Number of Ph.D Scholars Guided   1
Number of M.E./ M.Tech. Projects Guided   14
Number of M.E./ M.Tech. Projects Guiding   1

Papers Published in Journals

Research Papers Published in International Journals   20
Research Papers Published in National Journals   0

1. M.Vijayakarthick, S.Sathishbabu, P.K.Bhaba, "A New Repetitive Control Strategy in a Liquid Level System", Journal of Modern Applied Science (MAS), CCSE, Vol. 3, No. 11 ISSN 1913-1844, pp.17-23, 2009.

2. S.Sathishbabu,,M.Vijayakarthick,,Dr.P.K Bhaba and S.N Sivaraj, "Speed Control of DC Motor using Iterative Learning Controller" International Journal of Information Science and Education(IJISE) Vol. 1(1), pp. 1-10,2011

3. M.Vijayakarthick, S.Sathishbabu, P.K.Bhaba and S.N.Sivaraj, "Application Of Modified Repetitive Control Strategy For A Dc Motor, International Journal of Engineering Science and Technology (IJEST), ISSN : 0975-5462 Vol. 3 No. 7 July 2011 pp5500- 5506.

4. M.Vijayakarthick and P.K. Bhaba, "Optimized tuning of PI controller for a Spherical Tank Level system using New Modified Repetitive Control Strategy" International Journal of Engineering Research and Development (IJERD), vol.3 (6), pp.74-82, 2012.

5. M.Vijayakarthick and P.K. Bhaba, "Position Tracking Performance of AC Servomotor based on New Modified Repetitive Control Strategy", International Journal of Research and Reviews in Applied Sciences (IJRRAS), vol.10 (1), pp.119-128, 2012.

6. S.Sivasankar, B.Rajabalan, S.Sathishbabu, M.Vijayakarthick, "Application of Iterative Learning Control Strategy for SISO Process", International Journal of Computer Applications (IJCA) (ISSN-0975 – 8887), 2014

7. M.Vijayakarthick, S.Sathishbabu, S.Sivasankar, B.Rajabalan, "Robust Repetitive Controller for a Non linear System", International Journal of Applied Engineering Research, ISSN 0973-4562 vol. 9 No.26, pp. 9369-9372, 2014

8. S.Sathishbabu, E.Sivaraman, M.Vijayakarthick, S.Ramesh, "Real Time Implementation of Model Reference Controller in a Spherical Tank Process", International Research Journal of Engineering and Technology (IRJET), Vol 3(1),2015.

9. E. Sivaraman, M. Vijayakarthick, S. Sathishbabu , S. Ramesh, "Design of Model Reference Adaptive Control based PI Controller for a Non-linear Spherical Tank System Using Particle Swarm Optimization", International Research Journal of Engineering and Technology, Vol 3(1),2015.

10. S.Ramesh, M.Vijayakarthick, E.Sivaraman, S.Sathishbabu, "Implementation of Dynamic Matrix Control for Non-Linear system", International Research Journal of Engineering and Technology (IRJET), Volume: 03 Issue: 03, pp 1397-1402, 2016

11. S.Sathishbabu, M.Vijayakarthick, S.Ramesh, E.Sivaraman, "Real Time Implementation of Model Reference Controller in a Spherical Tank Process", Journal of Basic And Applied Research (JBAAR) , vol 2,issue 2, pp.113-117, march2016. Impact factor-3.158

12. M.Vijayakarthick, " Intelligent Learning Control Strategies for Position Tracking of AC Servomotor" International Research Journal of Engineering and Technology, Volume: 03 Issue: 01, pp 1350-1355, 2016

13. G.Thanigaivel, M.Vijayakarthick and S. Sathishbabu and P. K.Bhaba, "Optimized Tuning of PID Controller for a Induced Draft fan Using New Modified Repetitive Control Strategy", Advances In Natural And Applied Sciences, vol 11.(1), pp.92-98,2017.

14. G. Thanigaivel, M.Vijayakarthick and S.Sathishbabu, "A Recent Approach to Repetitive Control Strategy for Induced Draft Fan", European Journal of Applied Sciences, vol 9 (5), pp. 258-264, 2017.

15. G. Thanigaivel, M.Vijayakarthick and S.Sathishbabu, " Energy Savings In Air Heating Stove Of Tea Plant Using Repetitive Control Strategy, Journal of Engineering Research and Application, Vol. 8, Issue5 (Part -III), pp 79-84, May 2018

16. G. Thanigaivel, M.Vijayakarthick and S.Sathishbabu, "New Approach of Repetitive Control Strategy for DC Motor", International Journal of Pure and Applied Mathematics, Volume 119 No. 16, pp.3453-3465, 2018.

17. M.Vijayakarthick, S.Sathishbabu N.Shankar and G.Thanigaivel, Robust Repetitive Control Strategy for Air Heating System in Tea Industry, Solid State Technolog, Vol.6 (63), pp.3212-3223, 2020.

18. A. Ganesh Ram, M. Vijayakarthick, S. Meyyappan, N. Vinoth and S. Sathishbabu, Bifurcation and Chaos in Current Programmed Positive Output Luo_Converter, European Journal of Molecular & Clinical Medicine, Vol.7 (2), pp.5153-5164, 2020.

19. N. Vinoth, M.Vijayakarthick, A.GaneshRam, S. Meyyappan , S. Sathishbabu, Thresholding of skin melanoma images based on kapur's Entropy with Harmony Search Algorithm, European Journal of Molecular & Clinical Medicine, Vol.7 (11), pp.716-726, 2020
.
20. Govindarasu Ramasamy, Sudha G , Saranya K Vijayakarthick M. Dynamic model-based controller design for Direct Methanol Fuel Cel, The Tierarztliche Praxis Journal, Vol.41, pp. 505-515, 2021.

Papers Presented in Programmes

Research Papers Presented in International Programmes   12
Research Papers Presented in National Programmes   2

1. National Symposium on Instrumentation (NSI-33), College Engineering Andhra University, and Instrument Society of India, Bangalore. December 8-10, 2008.

2. National Conference on Safety, Health, Environment and Energy (SHEE-09), Engineering Wing, D.D.E, Annamalai University 2009.

3. First International Conference on Modeling, Control, Automation and Communication (ICMCAC-2010), Department of Instrumentation Engineering Velammal Engineering College, Chennai, 20 and 21st Dec 2010.

4. First International Conference on Modeling, Control, Automation and Communication (ICMCAC-2010), Department of Instrumentation Engineering Velammal Engineering College, Chennai, 20 and 21st Dec 2010.

5. 11th International Conference on Control Automation and Robotics (ICARCV10) held during 7th to 10th DEC 2010 at Nanyang Technological University, Singapore.-2010.

6. 3rd International Conference on Modeling Optimization and Computing (ICMOC'14) held in 10th and 11th April 2014,organized by Department of Mechanical Engg.,Noorul Islam, Nagercoil.

7. 3rd National Conference on Emerging Trends in Electronics, Instrumentation, Automation and Control (ETEIAC'14) held in 19th March 2014, organized by Department of Electronic and Instrumentation, Karpagam College of Engg., Coimbatore.

8. Allwyn Gnanadas, A., Sathishbabu, S., & Vijayakarthik, M. (2017, February). Identification of epileptic seizure using ReHo from Rs-fMRI. *In 2017 Second International Conference on Recent Trends and Challenges in Computational Models (ICRTCCM)* (pp. 292-296). IEEE.

9. Taxonomy of diabetic retinopathy patients using bio geography based optimization on support vector machine based on digital retinal images, International Conference on Intelligent Computing and sustainable system (ICICSS),20-21, September 2018

10. Intelligent learning control strategies for speed control of DC motor, International Conference on Intelligent Computing and sustainable system(ICICSS),20-21, September 2018

11. Thresholding of skin melanoma images based on kapur's Entropy with Harmony Search Algorithm, Second International Conference on Recent trends in Engineering and Scientific Technology-2020, 21 March 2020.

12. Karthikeyan, S., Sankar, T., Vijayakarthick, M., Ravi, T., & Rajasekar, B. (2020, December). Role of IOT in Healthcare using Smart Textiles. *In 2020 International Conference on Power, Energy, Control and Transmission Systems (ICPECTS)* (pp. 1-6). IEEE.

13. Karthikeyan, S., Dharani, B. N., Vijayakarthick, M., Ravi, T., & Narmadha, R. (2020, December). Raspberry PI Based Smart Projector. *In 2020 International Conference on Power, Energy, Control and Transmission Systems (ICPECTS)* (pp. 1-7). IEEE.

14. N.Vinoth, M.Vijayakarthick, A.Ganesh Ram, S.Meyyappan, Automatic number plate recognition of helmet less motorcyclists using computer vision,International Conference on future prospects of biotechnology and biomedical applications, 18 December 2020, Sri Shakthi Institute of Engineering and Technology, Coimbatore.

Book Chapter Publications

1. M. Vijayakarthick, S. Sathishbabu and P. K. Bhaba, "A Modified Repetitive Control Strategy for Nonlinear Systems" Current Research in Science and Technology, Chapter 13, Vol. 3, pp.146-157, 2019.

2. M. Vijayakarthick, S. Sathishbabu and A.Ganesh Ram, "Fuzzy Adaptive Intelligent controller for AC Servo Motor", Deep learning and Edge computing solutions for high performance Computing, Springer, Chapter 7, Vol. 3, pp.111-120, 2021.

3. M. Vijayakarthick, N. Vinoth, S. Sathishbabu, and S. Ramesh, Intelligent Learning Control Strategies for Speed Control of DC Motor, Proceedings of International Conference on Intelligent Computing, Information and Control Systems ICICCS 2020, Advances in Intelligent Systems and Computing, Springer, Vol.1272, pp.937-951, 2021.

4. N. Vinoth, M. Vijayakarthick, S. Ramesh, and E. Sivaraman, Taxonomy of Diabetic Retinopathy Patients Using Biogeography-Based Optimization on Support Vector Machine Based on Digital Retinal Images, Proceedings of ICSCN 2020,Sustainable Communication Networks and Application, Springer, Vol.55, pp.937-951, 2021.

5. N. Vinoth, A. Ganesh Ram, M. Vijayakarthick, S. Meyyappan, Automatic Mask Detection and Social Distance Alerting Based on a Deep-Learning Computer Vision Algorithm, Computational Modelling and Imaging for SARS-CoV-2 and COVID-19, Taylor & Francis, CRC Press, Chapter 5, pp.5- 21, 2021

6. M. Vijayakarthick, E. Sivaraman, S. Meyyappan, N. Vinoth, ANFIS Algorithm based Modeling and Forecasting of the COVID-19 Epidemic: A Case Study in Tamil Nadu, India. Computational Modelling and Imaging for SARS-CoV-2 and COVID-19, Taylor & Francis, CRC Press, Chapter 7, pp.111- 123, 2021

7. A.Ganesh Ram, S. Prabha, and M. Vijayakarthick, Prediction and Analysis of SARS-CoV-2 (COVID-19) Epidemic in India using LSTM Network, Computational Modelling and Imaging for SARS-CoV-2 and COVID-19, Taylor & Francis, CRC Press, Chapter 8, pp.125- 142, 2021

Sponsored Projects Completed

1. " Energy Savings in Air-Heating Stove at Tea Industry by New Modified Repetitive Control Strategy ", funded by UGC (July-2015 - June-2018). Project Cost: 1485000.

Programme Chaired

1. Chairman, International conference titled " IEEE International Conference on Intelligent Techniques in Control, Optimization and Signal Processing, (INCOS-2017)" conducted by Kalasalingam University from 23-Mar-2017 to 25-Mar-2017.

Programme Organized

1. ISTE approved Short Term Training Programme on "Hands on Experience in Matlab" Organised by Department of Instrumentation Engineering, Annamalai University, Annamalainagar, December 2014.

2. Two day workshop on PLC and HMI Programming, Organised by Department of Instrumentation Engineering, Madras Institute of Technology Campus, Anna University

Programme Attended

1. UGC Sponsored Refresher Course on "Digital Age Profiencies", Organized by the Dept. of Education, Annamalai University, November 23 to December 14, 2003.

2. Short term course on "ANN and Fuzzy logic" organized by Department of Electrical Engineering, NITTTR Chandigarh from November 27 to December 1, 2006.

3. Short term course on "Digital Signal Processing" organized by Department of Computer Science and Engineering, NITTTR Chandigarh from May 21 to May 25, 2007.

4. Short term course on "MATLAB" organized by Department of Electrical Engineering, NITTTR Chandigarh from November 19 to November 23, 2007.

5. Short term course on "Soft Computing Techniques and their Applications" organized by Department of Electronics and Communication Engineering, NITTTR Chandigarh from November 23 to November 27, 2009.

6. Short term course on "Virtual Instrumentation" organized by Department of Electrical Engineering, NITTTR Chandigarh from November 30 to December 4, 2009.

7. Short term course on "MATLAB" organized by Department of Electrical Engineering, NITTTR Chandigarh from November 22 to November 26, 2010.

8. Short term course on "Biotechnology and Biochemical Engineering" organized by Department of Applied Science, NITTTR Chandigarh from June 20 to June 24, 2011.

9. AICTE Sponsored FDP on "Recent Advances in Industrial Automation, Control and Embedded system", Organized by the Dept. of Applied Electronics and Instrumentation Engineering, St.Joseph's College of Engineering and Technology, Palai from June 10 to June 22, 2013.

10. Short term course on "Hands on Experience on Labview" organized by Department of Electrical Engineering, NITTTR Chandigarh from November 25 to November 29, 2013.

11. Emerging Trends in Process Automation (ETPA'14) Organised by Department of Instrumentation Engineering and Department of Chemical Engineering, Annamalai University, Annamalainagar, March 2014

12. DST-FIST sponsored Faculty Development Programme on "Technical Document Preparation Using Latex" organised by Staff Training Development Centre and Department of Electrical Engineering, Annamalai University, Annamalainagar on March 15, 2016.

13. DST-FIST sponsored Faculty Development Programme on " The Teaching Profession: Changes, Challenges and Perspectives" organised by Staff Training Development Centre and Department of Electronics and Instrumentation Engineering, Annamalai University, Annamalainagar on March 30, 2016.

14. Short term course on "Matlab and its Hardware Interface" organized by Department of Electrical Engineering, NITTTR Chandigarh from November 28 to December 2, 2016.

Patents Filed

1. Filed patent rights for Machine learning based Smart Helmet for Underground Workers. File number: 202141012134

Experience Abroad

1. Visited Nanyang Technology University, Singapore from 07-Dec-2010 to 10-Dec-2010. Purpose of visit : International Conference Paper Presentation

Invited Lectures

1. Lecture delivered on Signal Processing Tool Box in ISTE approved Short Term Training Programme on "Hands on Experience in Matlab" Organised by Department of Instrumentation Engineering, Annamalai University, Annamalainagar, December 2014.

2. Lecture delivered on Introduction to Simulink in Staff Training Programme on Matlab Applications in Engineering Computation" Organised by Department of Instrumentation Engineering and Department of Chemical Engineering, Annamalai University, Annamalainagar, February 2015.

3. Lecture delivered on ODE & PDE solvers,ISTE approved Short Term Training Programme on "Matlab Applications in Science & Engineering" Organised by Department of Instrumentation Engineering and Department of Chemical Engineering, Annamalai University, Annamalainagar, March 2015.

4. Lecture delivered on Sensors to Control Crystallization of Pharmaceuticals and Fine Chemicals in Student development Programme, organised by Department of Electronics and

Communication Engineering, Shri Venkateswara Hitech Engineering College,Gopichettypalayam, September 2016.

5. Lecture delivered on Design of Compensator in Student development Programme, organised by Department of Electrical and Electronics Engineering, Arulmigu Kalasalingam College of Engineering, Virudhunagar, March 2017.