Dr. G.Uma
Professor, Department of Electrical and Electronics Engineering

Cellphone : 9444405106

e-Mail ID : uma@annauniv.edu

Address : A1, Staff Quarters, Anna University

Present Position

Professor, Department of Electrical and Electronics Engineering, College of Engineering Guindy, Anna University, Chennai from January-1992.

Other Employment

- , .

Degree

- M.E. in Control and Instrumentation, College of Engineering, Anna University (1989 - 1991).
- B.E. in ELECTRONICS AND INSTRUMENTATION ENGG , Annamalai University, Annamalai University (1985 - 1989).

Research Degree

- Ph.D. in Power electronics from Faculty of Electrical Engineering, College of Engineering, Anna University (1995 - 2001).
  Title: Design and Implementation of controlled soft switched DC-DC Converters.

Research Guidance

Number of Ph.D Scholars Guided	: 9
Number of Ph.D Scholars Guiding	: 10
Number of M.S (By Research) Students Guided	: 2
Number of M.E./ M.Tech. Projects Guided	: 150
Number of M.E./ M.Tech. Projects Guiding	: 15
Number of M.S (By Research) Students Guiding as Joint-Supervisor	: 2

Papers Published in Journals

Research Papers Published in International Journals	: 72
Research Papers Published in National Journals	: 1

1. Uma, G., Latha, J., Chellamuthu, C., " A fuzzy based speed controller for soft switched DC to DC converter fed DC servomotor for aero space applications", Industrial Electronics, 2000. ISIE 2000., Vol. 2, pp. 730-734 (2000).

2. Uma, G., Shanthi, M., Chellamuthu, C., " Design and implementation of constant frequency soft switched regulated power supply for aerospace applications", Industrial Electronics, 2000. ISIE 2000. , Vol. 1, pp. 107-111 (2000).

3. Uma, G., Chellamuthu, C., " Modeling and design of fuzzy speed controller for constant frequency zero current switched converter fed DC servo motor for battery operated vehicles", Power System Technology, 2000, Vol. 1, pp. 211-215 (2000).

4. Uma, G., Chellamuthu, C., " Design and implementation of fuzzy logic control speed control system for a converter fed DC drive using 8097 micro controller", Industrial Electronics, 2000. ISIE 2000., Vol. 2, pp. 735-740 (2000).

5. Vivek, V. Uma, G., Devi, R.P.K., " Performance of induction motor driven submersible pump using Matlab/Simulink", Power System Technology, 2002., Vol. 2, pp. 765-768 (2002).

6. Sharmeela, C., Mohan, M.R, Uma, G., " Line harmonics reduction using neural based controller for shunt active filters", TENCON 2003, Vol. 4, pp. 1554-1557 (2003).

7. Sharmeela, C.; Uma, G.; Mohan, M.R.; Karthikeyan, K., "Voltage flicker analysis and mitigation - case study in ac electric arc furnace using PSCAD/EMTDC", Power System Technology, Vol. 1, pp. 707-712 (2004).

8. Arulselvi, S.; Archana, T.; Uma, G., " Design and implementation of CF-ZVS-QRC using analog resonant controller UC3861 for aerospace applications", Power System Technology, Vol. 2, pp. 1270-1275 (2004).

9. Imayavaramban, M., Latha, K., Uma, G.; Sunter, S., "Matlab/Simulink implementation for reducing the motor derating and torque pulsation of induction motor using matrix converter", Power Systems Conference and Exposition, Vol. 2, pp. 744-748 (2004).

10. Sharmeela, C.; Uma, G.; Mohan, M.R.; Karthikeyan, K., "Multi-level distribution STATCOM for reducing the effect of voltage sag and swell", Power System Technology, Vol. 1, pp. 306-310 (2004).

11. Banu, U.Sabura; Uma, G.; Panneerselvam, M.A., " Artificial controlled neural network emulator for quasi resonant converter", Field-Programmable Technology, pp. 301-305 (2004).

12. Arulselvi, S.; Biju, A.F.; Uma, G, "Design and simulation of fuzzy logic controller for a constant frequency quasi-resonant DC-DC converter", Intelligent Sensing and Information Processing, pp. 472-476 (2004).

13. Arulselvi, S., Govindarajan Uma , Saminath, V., " Development of simple fuzzy logic controller (SFLC) for ZVS quasi-resonant converter: Design, simulation and experimentation", Journal of Indian Institute of science, Vol. 86, Issue 3, pp. 215-233 (2006).

14. Santhi M, Uma G, Rajaram R, Gerald Christopher raj I, "DSP controlled soft switched push-pull ZCS_QRC Fed DC servo motor for aerospace applications", Proceedings of India International conference on Power Electronics, (2006).

15. Banu US, Uma G, "ANFIS gain scheduled CSTR with genetic algorithm based pid minimizing integral square error", IET Seminar Digest, (2007).

16. Jayashree E, Uma G, " State space averaging, closed loop analysis and stability studies of a step up positive output switched capacitor DC-DC Converter", IET Seminar Digest, (2007).

17. Arulselvi S, Uma G, "Design and implementation of CG-ZVS-QRC using analog resonant controller UC3861", International Journal of Electronics, (2007).

18. Banu US, Uma G, "Fuzzy gain scheduled pole placement based state feedback cotrol of CSTR", IET Seminar digest, (2007).

19. Arulselvi, S. , Uma, G., "Real-time implementation of Modified Fuzzy Logic Controller for a non-linear quasi-resonant dc-dc converter ", Journal of Research, published by IETE. Vol. 53, Issue 5, pp. 401-416 (2007).

20. N.S. Bhuvaneswari, G.Uma, T.R. Rangaswamy, "Neuro based model reference adaptive control of a conical tank level process", Control and intelligent systems, published by Acta Press. Vol. 36, Issue 1, pp. 98-105 (2008).

21. Banu.US, Uma G, "Fizzy gain scheduled CSTR with GA based PID", Chemical Engineering Communications, (2008).

22. Kavitha, A., Indira, G. , Uma, G., " Analysis and control of Chaos in SEPIC dc - dc converter using sliding mode control (Conference Paper) ", published by Conference Record - IAS Annual Meeting (IEEE Indu. (2008).

23. Sabura Banu.U ,G. Uma, " Fuzzy gain scheduled continuous stirred tank reactor with particle swarm optimization based PID control minimizing integral square error", Instrumentation science and technology, published by Taylor and Francis. Vol. 36, Issue 4, pp. 394-409 (2008).

24. A.Kavitha and G.Uma, " Experimental verification of Hopf bifurcation in DC-DC luo converter", IEEE Trans. on Power Electronics, published by IEEE. Vol. 23, Issue 6, pp. 1-6 (2008).

25. Sabura Banu.U ,G. Uma, " Fault tolerant control of CSTR with ANFIS based dedicated observer and state feed back control using LQR under abrupt sensor failure conditions", Instrumentation science and technology, published by Taylor and Francis. Issue 37, pp. 61-81 (2009).

26. Sabura Banu.U ,G. Uma, "Hybrid control of continuous stirred tank reactor", International journal of modelling and simulation, published by H index nine. Vol. 29, Issue 4, pp. 355-364 (2009).

27. N.S. Bhuvaneswari, G.Uma, T.R. Rangaswamy, "Neural network with dynamic programming for time-optimal control of conical tank level", Control and intelligent systems, published by Acta Press. Vol. 37, Issue 4, pp. 187 - 194 (2009).

28. N.S. Bhuvaneswari, G.Uma, T.R. Rangaswamy, " Adaptive and optimal control of non linear process using intelligence controllers", Applied soft computing , published by Elsevier. Vol. 9, Issue 1, pp. 182 - 190 (2009).

29. Bhuvaneswari, N.S. , Uma, G , Rangaswamy, T.R., "Adaptive and optimal control of a non-linear process using intelligent controllers ", Applied Soft Computing Journal, pp. Pages 182-190 (2009).

30. Banu, U.S , Uma, G., "Tuning of PID controller using internal model control with the filter constant optimized using bee colony optimization technique", published by Lecture notes in bioinformatics. pp. Pages 648-655 (2010).

31. A.Kavitha and G.Uma, "Resonant parametric perturbation method to control chaos in current mode controlled DC-DC buck-boost converter", Journal of Electrical engineering and technology, Vol. 5, Issue 1, pp. 171-178 (2010).

32. A.Kavitha and G.Uma, "Control of chaos in SEPIC DC-DC converter", International journal of control , automation and systems , Vol. 8, Issue 6, pp. 1320-1329 (2010).

33. M.G.Umamaheswari,Uma,g, Vijayalakshmi K.M, " Design and implementation of reduced-order sliding mode controller for higher-order power factor correction converters", Power Electronics, published by IET. Vol. 4, Issue 9, pp. 984-992 (2011).

34. E.Jayashree, G.Uma, "Analysis, design and implementation of a quasi-resonant DC-DC converter", IET Power Electronics, Vol. 4, Issue 7, pp. 785-792 (2011).

35. E.Jayashree, G.Uma, "Design and implementation of zero-voltage-switching quasi-resonant positive-output Luo converter using analog resonant controller UC3861", IET Power Electronics, Vol. 4, Issue 1, pp. 81-88 (2011).

36. E.Jayashree, G.Uma, "Analysis, design and control of zero-voltage switching quasi-resonant-positive output super lift Luo converter", IET Power Electronics, Vol. 4, Issue 1, pp. 21-28 (2011).

37. E.Jayashree, G.Uma, "Soft-switched-controlled-ultra lift Luo converter", IET Power Electronics, Vol. 4, Issue 1, pp. 151-158 (2011).

38. E.Jayashree, G.Uma, "Simulation and implementation of quasi resonant-negative output converter", International journal of power electronics, Vol. 3, Issue 5, pp. 547-560 (2011).

39. Sabura Banu.U ,G. Uma, "ANFIS based sensor fault detection for continuous stirred tank reactor (Conference Paper)", Applied soft computing Journal, published by Elsevier. Vol. 11, Issue 2, pp. 2618 - 2624 (2011).

40. Senthilkumar, R,Uma G, ""Design of ZVS Voltage Boost DC-DC Converter",", Wulfenia Journal, Austria,, Vol. 11, Issue 9, pp. 334 -345, (2012).

41. Anbukumar kavitha, Govindarajan Uma, "Sliding mode control of chaos in voltage mode buck converter", Journal of Electrical engineering, (2012).

42. M.G.Umamaheswari,Uma,G,Vijitha,S.R, "Comparison of hysteresis control and reduced order linear quadratic regulator control for power factor correction using DCDC Cuk converters", Journal of Circuits, systems and computers, published by World scientific. Vol. 21, Issue 1, (2012).

43. Senthilkumar, R,Uma G, ""Design and Implementation of ZVS Re- Lift DC-DC Converter",", European Journal of Scientific Research,, Vol. 86, Issue 1, pp. 123-134, (2012).

44. Mallapu Umamaheswari ; Govindarajan Uma ; Kanjanalai Vijayalakshmi, "Analysis and design of reduced-order sliding-mode controller for three-phase power factor correction using cuk rectifiers", published by IET. Vol. 6, Issue 5, pp. 935-945 (2012).

45. A.Kavitha and G.Uma, "Analysis of fast-scale instability in a power factor correction Cuk converter", IET Power Electronics, Vol. 5, Issue 8, pp. 1333-1340 (2012).

46. A.Kavitha and G.Uma, "Comparative study between peak current mode and hysteretic current mode control of a single-ended primary inductance converter", IET Power Electronics, Vol. 5, Issue 7, pp. 1226-1235 (2012).

47. A.Kavitha and G.Uma, "Control of chaos in positive output Luo converter using slope compensation method", International journal of power electronics, Vol. 4, Issue 1, pp. 17-32 (2012).

48. Deivasundari, P., Uma, G. and Poovizhi, R, "Analysis and experimental verification of Hopf bifurcation in a solar PV powered hysteresis current-controlled cascaded-boost converter", IET Power Electronics, published by IET. Vol. 6, Issue 4, pp. 763-773 (2013).

49. Santhi Rajendran; Uma Govindarajan; Annelyn Beulah Reuben; Aarthi Srinivasan, "shunt reactive VAR Compensator for grid connected induction Generator in Wind Energy Conversion Systems", IET Power Electronics, Vol. 6, Issue 9, pp. 1872 - 1883 (2013).

50. Deivasundari, P., Uma, G. and Kanimozhi, K, "Period-bubbling and mode-locking instabilities in a full bridge DC-AC buck inverter", IET Power Electronics , Vol. 6, Issue 9, pp. 1956 - 1970 (2013).

51. Deivasundari, P., Uma, G., Kavitha, A. and Umamaheswari, M.G., "Coexistence of fast-scale and slow-scale instability in UK power factor correction AC-DC pre-regulators under nonlinear current-mode control", IET Power Electronics, Vol. 6, Issue 1, pp. 78-87 (2013).

52. Deivasundari, P., Uma, G. and Murali, K, "Chaotic dynamics of voltage-mode controlled buck converter with periodic interference signals", International Journal of Bifurcation and Chaos, World scientific Publications, Vol. 23, Issue 6, (2013).

53. Santhi R,Uma , ShathaKumar S, Sabura Banu U, " Intelligent sensor fault tolerant control for variable speed wind electrical system ", IET Power Electronics, published by IET. Vol. 6, Issue 7, pp. 1308-1319 (2013).

54. Umamaheswari, M.G, Uma, G., Viswanathan, S.c, "Analysis and implementation of a three-phase power factor correction scheme using modular Cuk rectifier for balanced and unbalanced supply conditions", published by IET Power electronics. pp. Pages 1892-1908 (2013).

55. M.G.Umamaheswari ,G.Uma, " Analysis and design of reduced order linear quadratic regulator control for three phase power factor correction using Cuk rectifiers", Electric Power systems Research, published by Elsevier. Vol. 96, pp. 1-8 (2013).

56. Umamaheswari, M.G., Uma, G. Vijayalakshmi, K.M, "Analysis and design of reduced-order sliding-mode controller for three-phase power factor correction using Cuk rectifiers", published by IET Power Electronics. pp. Pages 935-945 (2013).

57. Deivasundari PS, Uma G, Poovizhi.R, "Analysis and experimental verification of Hopf bifurcation in a solar photovoltaic powered hysteresis current controlled cascaded boost converter", IET Power Electronics, published by IET. (2013).

58. Deivasundari PS, GeethaR, Uma G, Murali.K, "Chaos, bifurcation andintermittent phenomena in DC-DC converters under resonant parametric perturbation", European physical journal special topics, (2013).

59. Santhi R,Uma G, Deiva Sundari P, "Active and Reactive power control of PMSG Fed Grid Connected Matrix Converter in wind Energy Systems", IET Power Electronics, Vol. 7, Issue 3, pp. 591 - 603 (2014).

60. Umamaheswari MG, Uma G, Annie Isabella L, " Analysis and design of digital predictive controller for PFC Cuk converter", Journal of Computational Electronics, published by IET. Vol. 13, pp. pp. 142-154 (2014).

61. Deivasundari PS Uma G, Santhi R, "Experimental verification of Hopf bifurcation in pulse width modulated inverter fed cage induction motor dirive system", IET Power Electronics, (2014).

62. Deivasundari P, Uma G, Ashita S, " Chaotic dynamics of a zero average dynamics controlled DC-DC Cuk converter", IET Power electronics, (2014).

63. Deivasundari P Uma G Vincent C, Murali K, " Non-linear intermittent instabilities and their control in an interleaved DC DC Converter", IET Power Electronics, (2014).

64. Shanthi P, Uma, G & Deiva Sundari, P, " Instantaneous power-based current control scheme for VAR compensation in hybrid AC/DC networks for smart grid applications", IET Power Electronics, Vol. 7, Issue 5, pp. 1216 - 1226 (2014).

65. Sowmmiya U, Uma G, "Effective performance and power transfer operation of current controlled WRIG based WES in hybrid grid", Renewable Energy, Vol. 101, pp. 1052-1063 (2017).

66. Sowmmiya U, Uma G, "Control and maximum power tracking operation of hybrid excited variable Speed Induction generator", Electric Power System Research, Vol. 143, pp. 771-781 (2017).

67. Sowmmiya U, Uma G, "Control and power transfer operation of WRIG based WECS in a hybrid AC/DC microgrid", IET Renewable Power generation, (2017).

68. K. Padmanathan, Uma Govindarajan, Vigna K. Ramachandaramurthy, T. Sudar Oli Selvi, "Multiple Criteria Decision Making (MCDM) Based Economic Analysis of Solar PV System with Respect to Performance Investigation for Indian Market", Sustainability, Vol. 9, Issue 2, pp. 820 (2017).

69. GEETHA.R, Dr.UMA.G, ARCHANA.S, "EXPLORATION OF INTERMITTENT INSTABILITIES IN A BOOST CONVERTER SUPPLIED FROM A RECTIFIER", Journal of Electrical Engineering, (2017).

70. Archana Subramanian, Uma Govindarajan, " Analysis and mitigation of EMI in DC–DC converters using QR interaction", IET Circuits, Devices & Systems, published by IET. Vol. 11, Issue 4, pp. 371 - 380 (2017).

71. Shanthi, P, Uma, G & Keerthana, M.S, "Effective Power Transfer Scheme in a grid connected hybrid wind/photovoltaic system", IET Renewable Power generation, published by IET. Vol. 11, Issue 7, pp. 1005-1017 (2017).

72. Sowmmiya U, Uma G, "ANFIS based sensor fault tolerant control for hybrid Grid", IET Generation, Transmission and Distribution, (2018).

73. Sowmmiya U, Uma G, "Sensor fault control for variable speed wind energy system in stand alone DC microgrid ", international Transactions on Electrical Energy Systems, (2018).

Papers Presented in Programmes

Research Papers Presented in International Programmes	: 8
Research Papers Presented in National Programmes	: 14

1. 1. Deivasundari, P., Uma, G., Geetha, R. and Murali, K, on Chaos, bifurcation and intermittent phenomena in DC-DC converters under resonant parametric perturbation, organised by IISER, Pune, India, 2012, India .

2. Senthil Kumar and Uma G, on Design of Resonant soft switching converter, organised by IEEE.

3. Santhi M Rajaram R Uma G Gerald Christopher Raj I, "DSP controlled soft switched push-pull ZCS_QRC fed DC servo motor for aerospace applications" presented in a National level conference on Power Electronics, India .

4. Sabura Banu.U Uma g, "Modelling of CSTR by fuzzy clustering" presented in a National level conference on Power electronics, India .

5. Arulselvi.S, Deepak K Uma G, "Design, analysis and control of a new multi output flyback CF-ZVS-ARC" presented in a National level conference on Industrial technology, organised by IEEE, India .

6. Arulselvi S, SubashiniC, Uma G, " A new push pull zero voltage switching quasi-resonant convertre Topology analysis and experimentation" presented in a National level conference , organised by IEEE, India .

7. Sharmeela C, Uma G Mohan MR, "Multi level distribution STATCOM for voltage sag and swell reduction" presented in a National level conference on Power Engineering, organised by IEEE, India .

8. Arulselvi S, Uma G, Chidambaram M, "Design of PID Controller for boost converter with RHS zero" presented in a National level conference on Power Electronics and motion control conference, India .

9. Imayavaramban M, Latha K, Uma G, "Analysis of different schemes of matrix converter with maximum voltage conversion ratio" presented in a National level conference on Electrotechnical conference, organised by MELECON.

10. Banu US, Uma G, Panneer selvam MA, "Artificial controlled neural network emulator for Quasi Resonant Converter" presented in a National level workshop on Electronic Design Test and applications, organised by IEEE.

11. ArulselviS, Biju AF, Uma G, "Design and simulation of fuzzy logic controller for a constant frequency quasi resoanat dc-dc converter" presented in a International level conference on Intelligent sensing and Information processing, India .

12. Uma G, Chellamuthu C, "Design and implementation of fuzzy logic control speed control system for a converter fed DC drive using 8097 micro controller" presented in a International level conference on Industrial Electronics, organised by IEEE, India .

13. Uma G, Shanthi M, Chellamuthu C, "Design and implementation of constant frequency soft switched regulated power supply for aerospace applications" presented in a International level conference on Industrial Electronics, organised by IEEE, India .

14. Sharmeela C, Uma G, Mohan MR, Karthikeyan K, "Multi-level distribution STATCOM for reducing the effect of voltage sag and swell " presented in a International level conference on Power System Technology, organised by POWERCON, India from 21-Nov-2004 to 24-Nov-2004.

15. Arulselvi S, Archana T Uma G, "Design and implementation of CF-ZVS-QRC using analog resonant controller UC3861 for aerospace applications " presented in a National level conference on Power System Technology, , organised by POWERCON, India from 21-Nov-2004 to 24-Nov-2004.

16. Sharmeela.C Uma G Mohan MR Karthikeyan K, "Voltage flicker analysis and mitigation-case study in AC Electric Arc Furnace using PSCAD/EMTDC" presented in a International level conference on Power System Technology, , organised by POWERCON , India from 21-Nov-2004 to 24-Nov-2004.

17. Arulselvi.S, Kumar CR, Uma G, Chidambaram.M, "Design of fuzzy sliding mode control for DC-DC converter " presented in a International level conference on Intelligent Sensing and Information Processing, organised by Anna University, India from 04-Jan-2005 to 07-Jan-2005.

18. "Space Vector PWM control of shunt active filter for current harmonic suppression" presented in a National level conference on Signals, systems and communication, organised by ECE, Anna University, Chennai, India from 01-Jun-2005 to 02-Jun-2005.

19. "Line harmonics reduction and power factor correction using fuzzy logic controller for three phase shunt active filter" presented in a National level conference on Signals, Systems and Communication, organised by ECE, Anna University Chennai, India from 01-Jun-2005 to 02-Jun-2005.

20. "Design Analysis and control of Multi output flyback ZVS-QRC" presented in a National level conference on Signal Systems and Communication, organised by ECE, Anna University, Chennai, India from 01-Jun-2005 to 02-Jun-2005.

21. Kavitha A, Indira G, Uma G, "Analysis and control of chaos in SEPIC Dc-DC Converter using sliding mode control" presented in a International level conference on IAS Annual Meeting, organised by IEEE Industry Applications society, Canada from 05-Oct-2008 to 09-Oct-2008.

22. Kavitha A, Uma G, "Bifurcation analysis of DC-DC converters using discrete time model " presented in a National level conference on Power System Technology POWERCON and IEEE Power India , organised by POWERCON, India from 12-Oct-2008 to 15-Oct-2008.

Sponsored Projects Completed

1. "Power quality emhancement using custom power devices".. Project Cost: 8.00.

Programme Organized

1. Co-ordinator, National level Short Course on "Power Quality ,harmonics , Mitigation" .

2. Co-ordinated, National level workshop on "Energy Audit and Demand side management" from 01-Mar-2007 to 02-Mar-2007.

Programme Attended

1. Attended a National level Short Course on "Object oriented software engineering" organized by School of Computer science and engineering,Aanna university, India from 12-Mar-2001 to 25-Mar-2001.

2. Attended a National level Short Course on "Satellite image processing and natural resources management" organized by Centre for Geoscience and Engineering, Anna university, Chennai, India from 21-Jan-2002 to 31-Jan-2002.

3. Attended a National level Short Course on "Network Security" organized by Ramanujan Computing Centre Anna University, India from 11-Feb-2002 to 23-Feb-2002.

4. Attended a National level Short Course on "Digital control of Power Electronic Equipment (A Laboratory course)" organized by Centre for Continuing Education, IIT, Bangalore, India from 07-Jul-2003 to 11-Jul-2003.

5. Participated in a National level workshop on "Electric power quality" organized by Dept. of Electrical Engineering, IIT, Kanpur, India from 09-Nov-2004 to 10-Nov-2004.

6. Participated in a National level conference on "Power quality Principles, standards and solutions" organized by Dept. of Electrical engineering, IIT Madras, Chennai, India from 27-Dec-2004 to 30-Dec-2004.

7. Attended a National level Short Course on "Semiconductor manufacturing processes" organized by Dept. of Chemical Engineering, IIT Madras, Chennai, India from 23-May-2005 to 27-May-2005.

8. Attended a National level seminar on "Electrical Drives and Embedded Control" organized by DEEE, Anna University, Chennai, India from 17-Dec-2012 to 21-Dec-2012.

9. Attended a National level Short Course on "Power Quality and Harmonic Mitigation" organized by DEEE, Anna University, Chennai, India from 25-Feb-2013 to 27-Feb-2013.

10. Attended a National level Short Course on "EE2025 Intelligent control" organized by Centre for faculty development, Anna University, Chennai, India from 19-Jun-2013 to 26-Jun-2013.