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| **Academic Profile** |
| **Name** | **Dr. S. NAGARAJA RAO** |
| **Qualification**  | * Ph.D. (Power Electronics). Jawaharlal Nehru Technological University, Kakinada, Andhra Pradesh – 2019
* M.Tech (Power Electronics). Jawaharlal Nehru Technological University, Hyderabad, Andhra Pradesh – 2008
* B.Tech. Jawaharlal Nehru Technological University, Hyderabad, Andhra Pradesh – 2006
 |
| **Experience**  | * Assistant Professor (July 2014 –Till date): Ramaiah University of Applied Sciences, Bangalore, Karnataka, India
* Assistant Professor (July 2008 –May 2014): Rajeev Gandhi Memorial College of Engineering & Technology, Nandyal, Andhra Pradesh, India
 |
| **Research**  | * **Interest: Impedance Source Inverters, Multilevel Converters with Fault Tolerance, Advanced PWM Techniques, Grid Integration**
* **Expertise: Multilevel Inverters, PWM Techniques, DC – DC Converters**
 |
| **Publications** (Detailed list of Publications) | * **Ph.D. Dissertation:**  “**Cascaded H-Bridge Reversing Voltage Multilevel Inverter Topology with High Voltage Gain Boost Converter for Distributed Generation”**
* **National Conference Papers:03**
1. **S.Nagaraja Rao** , A. Suresh Kumar , P.Sunil chaitanya , paper titled as “Comparison of Traditional and Z Source Inverter Using Simplified Space Vector Modulation” is published in “National Conference on Emerging Trends in Power systems (ETPS -2010), may 7-8,2010, Madhurai, Tamilanadu.
2. **S.Nagaraja Rao**, A. Suresh Kumar, S.Inthiyaz Basha, paper titled as “Advanced Modulation Technique of a seven level Cascaded H-Bridge Multilevel Inverters” is published in “National Conference on Emerging Trends in Power systems (ETPS -2010), may 7-8,2010, Madhurai, Tamilanadu.
3. **S.Nagaraja Rao** , V. Naga Bhaskar Reddy , Dr.Ch.Sai Babu, paper titled as “Advanced modulated Techniques for diode clamped multilevel inverters”, conducted by JNTU College of Engineering National Conference on “Recent Advances in Electrical Engineering (EAR 2K8)”, Anantapur, on 26th-27th December, 2008 pp 183-189.
* **International Conference Papers: 09**
1. **S. Nagaraja Rao**, Pranupa S., and Indira M.S., 2019, October. Cross Connected Source based Reduced Switch Count Multilevel Inverter Topology with Fault Tolerance. In 2019 IEEE International Conference on Global Conference for Advancement in Technology (GCAT), Bangalore, India.
2. Shrikanth Misal,  **S.Nagaraja Rao** A paper titled as “Comparative Analysis of a 3-Phase, 3-Level Diode Clamped ZSI Based on Modified Shoot Through PWM Techniques” is published in “IEEE International Conference on Signal Processing, Informatics, Communication and Energy Systems” (IEEE SPICES - 2015) - NIT, Calicut, Kerala, India, 19-21 February 2015.
3. **S.Nagaraja Rao** , D.V.Ashok Kumar, Ch. Sai Babu A paper titled as “New Multilevel Inverter Topology with Reduced Number of Switches using Advanced Modulation Strategies” is published in “IEEE International Conferenceon Power, Energy and Control Electrical”-ICPEC’13, Dindigul,Tamilanadu, Feb, 06-08, 2013. **Cited by 72**
4. V.NagaBhaskar Reddy, **S.Nagaraja Rao**, Ch. Sai BabuA paper titled as “Emphasis of Modulated Techniques for Cascaded Multilevel Inverters fed drive using FPGA” is published in “IEEE International Conference on Power, Energy and Control Electrical”-ICPEC’13, Dindigul,Tamilanadu, Feb, 06-08, 2013. **Cited by 5**
5. **S.Nagaraja Rao**, A. Suresh Kumar , K.Navatha , paper titled as “Carrier Overlapping PWM methods for three phase Cascaded five level Inverter” is published in “International Conference on Emerging Trends in Engineering (ICETE-2012), Udipi, 15th May-2012, NMAMIT, Nitte, Karnataka, India.
6. **S.Nagaraja Rao**, B.M.Manjunatha , V.V.Ramana Reddy , paper titled as “Three level Z-Source Inverters using Shoot through PWM Control Techniques” is published in “International Conference on Emerging Trends in Engineering (ICETE-2012), Udipi, 15th May-2012, NMAMIT, Nitte, Karnataka, India.
7. **S.Nagaraja Rao**, Y.Vijaya Suresh , J.Nagarjuna Reddy , paper titled as “Different Schemes of Matrix Converter with Maximum Voltage Conversion Ratio” is published in “International Conference on Electrical Power and Energy Systems(ICEPES-2010), August 26-28,2010, NIT, Bhopal, proc.pg 486-492.
8. **S.Nagaraja Rao**, A.Suresh Kumar , J.Nagarjuna Reddy , paper titled as “A Multilevel PWM Inverter topology for Neural Network Based Photovoltaic Generating System” is published in “International Conference on Electrical Power and Energy Systems(ICEPES-2010), August 26-28,2010, NIT, Bhopal, proc.pg 507-512.
9. **S.Nagaraja Rao**, V. Naga Bhaskar Reddy , B.Shravan Kumar , A paper titled as “Simulation and Implementation of Modulating Techniques for Multilevel Inverters by Using FPGA” is published in “International Conference “Emerging Needs in Computing, Communication, Signals and Power”-ICECCSP-2009, IEEE Bangalore Section - 18th Annual Symposium, Karnataka, Aug, 22-23, 2009.
* **International Journal Papers:21**
1. **S. Nagaraja Rao** et.al. “A New Three Phase Multilevel Inverter Topology with Symmetrical and Asymmetrical Algorithms,” TEST Engineering & Management, ISSN: 0193-4120, Vol. 82, No. 1, pp. 8633 - 8644, Feb. 2020. **(Scopus Indexed Journal listed in Q4).**
2. Kiran Kumar B.M., **S. Nagaraja Rao** and Pranupa S. “Design and Development of Three DoF Solar Powered Smart Spraying Agricultural Robot,” TEST Engineering & Management, ISSN: 0193-4120, Vol. 83, No. 2, pp. 5235 - 5242, March. 2020. **(Scopus Indexed Journal listed in Q4).**
3. **S. Nagaraja Rao**, D.V. Ashok Kumar and Ch. Sai Babu., “Implementation of Multilevel Boost DC-Link Cascade based Reversing Voltage Inverter for Low THD Operation,” Journal of Electrical Engineering and Technology (JEET), ISSN(Print) 1975-0102, ISSN(Online) 2093-7423, Vol. 13, No. 4, pp. 1527-1537, July 2018. (doi:10.5370/JEET.2018.13.4.1527). Journal Impact Factor:0.597. **(Scopus & Web of Science Journal listed in** **Q2).**
4. **S. Nagaraja Rao**, D.V. Ashok Kumar and Ch. Sai Babu "FPGA Implementation of a Three-Level Boost Converter-fed Seven-Level DC-Link Cascade H-Bridge inverter for Photovoltaic Applications", Electronics — Open Access Journal, 2018; Vol. 7, No. 11, (doi:10.3390/electronics7110282). Journal Impact Factor: 2.110. **(Scopus & Web of Science Journal listed in** **Q2).** **Cited by 7**
5. **S. Nagaraja Rao**, D.V. Ashok Kumar and Ch. Sai Babu., "Grid Connected Distributed Generation System with High Voltage Gain Cascaded DC-DC Converter Fed Asymmetric Multilevel Inverter Topology", International Journal of Electrical and Computer Engineering (IJECE), ISSN: 2088-8708, Vol. 8, No. 6, pp. 4047-4059, December 2018 (doi: 10.11591/ijece.v8i6). (**Scopus & Emerging Sources Citation Indexed Journal listed in Q2)**  **Cited by 7**
6. **S. Nagaraja Rao**, D.V. Ashok Kumar and Ch. Sai Babu., "Integration of Reversing Voltage Multilevel Inverter Topology with High Voltage Gain boost Converter for Distributed Generation", International Journal of Power Electronics and Drive Systems (IJEPDS), ISSN: 2088-8694, Vol. 9, No. 1, pp. 210-219, March 2018. (doi: 10.11591/ijpeds.v9.i1). (**Scopus Indexed Journal listed in** **Q2). Cited by 4**
7. **S. Nagaraja Rao**, D.V. Ashok Kumar and Ch. Sai Babu "Implementation of Cascaded based Reversing Voltage Multilevel Inverter using Multi Carrier Modulation Strategies", International Journal of Power Electronics and Drive Systems (IJEPDS), ISSN: 2088-8694, Vol. 9, No. 1, March 2018, pp. 220-230, March 2018. (doi:10.11591/ijpeds.v9.i1). (**Scopus Indexed Journal listed in** **Q2). Cited by 7**
8. **S. Nagaraja Rao**, D.V. Ashok Kumar and Ch. Sai Babu., ‘‘Multilevel Inverter Topology for Distributed Generation with High Voltage Gain Cascaded DC-DC Converter’’ Journal of Advanced Research in Dynamical and Control Systems (JARDCS), Vol. 9 No.1pp. 264-282, October 2017. SJR Factor: 0.114. (**Scopus Indexed Journal listed in** **Q4).** **Cited by 2**
9. **S. Nagaraja Rao**, Kiran Kumar B M, Pranupa S., 2018. Three Phase Diode Clamped Multilevel DC Link Inverter with Multi Reference Modulation Techniques. Journal of Advanced Research in Dynamical and Control Systems (JARDCS), Vol. 10, No.9, pp. 1793-1805. SJR Factor: 0.114. (**Scopus Indexed Journal listed in** **Q4).**
10. **S. Nagaraja Rao**, Praveen Kumar V., 2018. Comparative Analysis of Capacitor Clamped and Step-up Switched Capacitor Multilevel Inverters with Self-Voltage Balancing. Journal of Advanced Research in Dynamical and Control Systems (JARDCS), Vol. 10, No.9, pp. 1841-1855. SJR Factor: 0.114. (**Scopus Indexed Journal listed in** **Q4).**
11. **S. Nagaraja Rao**, Ambresh G. Biradar, Sachin S., 2018. Asymmetric Cascaded Inverter for Photovoltaic Applications Based on Carrier Redistribution Modulation Strategies. International Journal of Engineering &Technology (IJET-UAE), 7(4.24), pp.14-19. (**Scopus Indexed Journal listed in** **Q4).**
12. Pranupa S, Kiran Kumar B M, **S. Nagaraja Rao**, 2018. Detection of Rotating Diode Failure Condition & its Protection in Brushless Alternator. International Journal of Engineering &Technology (IJET-UAE), 7(4.24), pp.26-32. (**Scopus Indexed Journal listed in** **Q4).**
13. **S. Nagaraja Rao**, D.V. Ashok Kumar, Ch. Sai Babu., “PWM Control Strategies for Multilevel Inverters Based on Carrier Redistribution Technique” International Journal of Electrical Engineering & Technology (IJEET), ISSN 0976 – 6545, Volume 5, Issue 8, August (2014), pp. 119-131, **Journal Impact Factor: 6.83.**
14. **S.Nagaraja Rao**, P.Chaithanya Deepak paper titled as “Cascaded H-Bridge Multilevel Inverter Using Inverted Sine Wave PWM Technique” is published in International Journal of Emerging Trends in Electrical and Electronics (IJETEE – ISSN: 2320-9569) Vol. 6, Issue. 1, Aug-2013. **Cited by 15**
15. **S.Nagaraja Rao**, L.Sai Suman Rao paper titled as “Three Level Neutral Point Clamped Back to Back Converter” is published in International Journal of Emerging Trends in Electrical and Electronics (IJETEE – ISSN: 2320-9569) Vol. 6, Issue. 1, Aug-2013. **Cited by 11**
16. **S.Nagaraja Rao**, A.Suresh Kumar, K.Navatha, paper titled as “Comparative study on Carrier overlapping PWM Strategies for Three phase five level Diode clamped and Cascaded inverters” is published in International Journal of Electrical and Electronics Engineering (IJEEE), ISSN (PRINT): 2231 – 5284 Vol-1 Iss-4, 2012. (Impact factor: 1.67) **Cited by 2**
17. **S.Nagaraja Rao**, D.V.Ashok Kumar, K.Sreekanth paper titled as “Comparative Evaluation of Three Phase Three Level Neutral Point Clamped Z -Source Inverters using Advanced PWM Control Strategies” is published in International Journal of Electrical and Electronics Engineering (IJEEE), ISSN (PRINT): 0974 – 2174 Vol-5 Iss-3,pp. 239-254, 2012. (Impact factor: 1.67)
18. **S.Nagaraja Rao** , V.V.Ramana Reddy , paper titled as “Shoot Through PWM control Strategies for Three Level Z source Inverter” is published in “International journal of systems, Algorithms & Applications (IJSAA-2012), Volume 2, Issue ICRAET12, May 2012, ISSN Online: 2277-2677, proc.pg 226-230. **Cited by 2**
19. **S.Nagaraja Rao**, V. Naga Bhaskar Reddy, Dr.Ch.Sai Babu , paper titled as “Comparison of Modulation Techniques for Multilevel Inverter fed Permanent Magnet Synchronous Motor” is published in International journal “International Journal of Engineering Science and Technology”, Vol. 2(10), Oct.2010, 5206-5214. **Cited by 7**
20. **S.Nagaraja Rao**, V. Naga Bhaskar Reddy , Dr.Ch.Sai Babu , paper titled as “Advanced Modulating Techniques for Multilevel Inverter by using FPGA” is published in International journal “International Review of Electrical Engineering(IREE)” ,Vol.5 , No 3 May-April 2010. (Impact factor: 0.57), (**Scopus Indexed Journal listed in** **Q3).****Cited by 11**
21. **S.Nagaraja Rao**, V. Naga Bhaskar Reddy , Dr.Ch.Sai Babu , paper titled as “Advancement in Cascaded Multilevel Inverters” is published in International journal “International Journal of Industrial Electronics and Control December 2009 ISSN 0974– 2220 Volume 1, Number 1-2 (2009), pp.1-11.

**Book Chapters: 01**Manoj Hegde, **S.Nagaraja Rao** and M.S. Indira, book chapter titles as “Modified Cascaded Reversing Voltage Multilevel Inverter using Optimal Switching Angle Technique for Photovoltaic Applications” 978-981-15-4691-4, Springer Nature (Lecture Notes in Electrical Engineering), 2020. |
| **Presentations**(Detailed list of Presentations) | * **International Conference Paper Presentations: 04**
1. Oral presentation in “IEEE International Conference on Signal Processing, Informatics, Communication and Energy Systems” (IEEE SPICES) 19-21 February 2015, NIT, Calicut, Kerala, India.
2. Oral presentation **in “International Conference on Current Trends in Engineering and Management” (ICCTEM), 17 – 19, July 2014, Mysore, Karnataka, India**
3. Oral presentation in “International Conference on Electrical Power and Energy Systems” (ICEPES), August 26-28, 2010, NIT, Bhopal, India.
4. Oral presentation **in “International Conference “Advances in Energy Conversation Technologies” - ICAECT, January 09-11, 2010, Manipal, Karnataka, India.**
* **National Conference Paper Presentations: 02**
1. Oral presentation in “National Conference on Emerging Trends in Power systems (ETPS), May 7-8, 2010, Madhurai, Tamilanadu, **India.**
2. Oral presentation in “National Conference on Emerging Trends in Power, Energy and Control (ETPEC'18), 10-11 August, 2018, Vijayawada, Andhra Pradesh, India.
* **Demo Projects Presented at Conferences: 01**
1. Demo presentation in IEEE International Conference on Future Technologies for a Smart, Safe & Sustainable World titled as “Solar Tracking using Thermoelectric Generator”, 27th Sept. 2019.
 |
| **Teaching**  | * **Modules Taught:**

**Power Electronics, Analysis of Power Electronic Converters, Power Electronics and Drives, Basic Electrical Engineering, Electromagnetic Fields, Field Theory, Control Systems, Linear System Analysis, Control Systems, Microprocessors and Microcontrollers, Elements of Electrical Engineering, Electrical Devices and Appliances,**  **Micro Computer System Design,**  **Power Converter Analysis and Design** * **UG Thesis Advised: 12**
1. Optimization of THD in a Multilevel Inverter using Simulation Tool (2019)
2. IoT based Irrigation System Powered by Solar Energy for Paddy (2018)
3. Solar Tracking using Thermo Electric Generator (2018)
4. **PC based Electrical Load Control (2014)**
5. **Advanced Vehicle Security System with Theft control and Accident Notification (2013)**
6. Hand Gesture based Wheel Chair movement control for the Disable using MEMS Technology (2012)
7. A Carrier based PWM Strategy with zero sequence voltage injection for Z-Source inverter (2012)
8. A Carrier based PWM Strategy with zero sequence voltage injection for five level inverter (2011)
9. Power quality improvements of a 3-phase 4-wire distribution system using a Zig-Zag Transformer and a VSC (2011)
10. Comparison of simplified SVPWM for 3-level inverters (2010)
11. A New Simplified Multilevel Inverter Topology For DC/AC Conversion (2009)
12. Modeling 0f DC/AC Inverter using Non-Linear Robust Control (2009)
* **PG Thesis Advised: 12**
1. **Performance Analysis of Reduced Switch Multilevel Inverter Using Modulation Techniques** (2019)
2. **Analysis and Design of High voltage Series MOSFET for Flyback Converter** (2018)
3. **Three Level Neutral Point Clamped Back to Back Converter (2014)**
4. Reversing Voltage Topology by using PWM Techniques (2014)
5. Carrier Overlapping PWM Methods For Multi level Inverters (2012)
6. Shoot through PWM control strategies for three level Z-source inverters (2012)
7. Hybrid PWM Control method for Multilevel Inverter (2011)
8. Power Quality improvement by using DVR and D-STATCOM (2011)
9. Comparison of single-phase and three-phase cascaded and multilevel D.C link inverter with PWM control methods (2011)
10. Simulation of a Matrix Converter fed Induction Motor (2011)
11. A Carrier based PWM Techniques in Two level and Three level Z Source Inverters (2010)
12. **Constant frequency control of full bridge LC Resonant converter integrated with PV System (2009)**
 |
| **Achievements**  | * Topper in M.Tech
 |



Signature: Dr. S. Nagaraja Rao Date: 9th July 2020