Dr.C.BHARATIRAJA, B.E, M.E., Ph.D., PDF (USA and SA),

Award recipient - DST- <u>Indo-US</u> Bhaskara Advanced Solar Energy (<u>BASE</u>) Fellowship

Award recipient - Young Scientists Fellowship Scheme (YSFS), Tamil Nadu State Council for Science and Technology.

Associate Professor,

Department of Electrical and Electronics Engineering,

SRM Institute of Science and Technology (formerly SRM University),

Kattankulathur Campus, Chennai, TN, India - 603 203.

Official: bharatic@srmist.edu.in Personal: bharatiraja@gmail.com

Mobile: +91-90427 01695(WhatsApp), (voice)



Education

• Postdoctoral Fellow (PDF) - Northeastern University, Boston, USA

Feb. 2018 to to Aug.2018

- Sponsored, Bhaskara Advanced Solar Energy (BASE) Fellowship, Department of Science and Technology (DST), Govt. of India Indo-U.S. Science and Technology Forum.
- Postdoctoral Fellow (PDF)

Nov. 2015 to Nov.2016

Centre for Energy and Electric Power (CEEP), Faculty of Engineering and the Built Environment, Tshwane University of Technology (TUT) -Main Campus, South Africa-0001

• *Ph.D. in Electrical Engineering University:* SRM University, Chennai, India-603203

Sept. 2009 to May.2015

- * Thesis: Ingenious Space Vector PWM Schemes for Performance Enhancement of Three Phase Neutral Point Diode Clamped Multilevel Inverter Drives. Dr.S.Jeevananthan Professor, PEC, Pondicherry
- * Published 5 high Impact Factor SCI journals (IEEE, IET, and Elsevier) to support the Ph. Dthesis
- Master of Engineering in Power Electronics and Drives
 June. 2004 to May. 2006

 Only on the American Company of the Am

College, University: Government College of Technology, Anna University (GCT-Campus), CGPA: 8.8/10

 $(88.8\ \%)$ with Distinction.

• Bachelor of Engineering in Electrical and Electronics Engineering June. 1998 to May. 2002 College, University: Kumaraguru College of Technology, Bharatiyar University, Coimbatore.

Professional Experience

Associate Professor, In *

Jan 2018 to Till Date

• Visiting Researcher, University of South Africa.

Nov 2018 to Till Date

Assistant Professor (Selection Grade), in *

June 2017 to Dec 2017

• Assistant Professor (Senior Grade), in *

June 2012 to June 2017

• Assistant Professor (Ordinary Grade), in*

June 2006 to June 2012

* Department of Electrical and Electronics Engineering, SRM Institute of Science and Technology (formerly SRM University), Kattankulathur campus, Chennai, India-603203.

Industrial Experience

 Design Engineer and Testing Analyst TESCOM Electronics Bangalore, India April 2002 to June 2003

Research Experience

Visiting Research Scientist-

Nov 2019 - Dec 2019

- Department of Electrical and Mining Engineering, University of South Africa (UNISA), South Africa.
 - Host Department of Electrical Engineering, UNISA, South Africa.

Visiting Research Scientist-Postdoctoral Fellow,

Feb. 2018 to Aug.2018

- Department of Electrical and Computer Science Engineering, Northeastern University, Boston, USA.
 From Feb 2018.
 - ♣ Host Professor: Prof. <u>Brad Lehman</u>, Editor-in-Chief, *IEEE Transactions on Power Electronics*, Dena Research Lab, Department of Electrical and Computer Science Engineering, Northeastern University, USA.

Postdoctoral Fellow

Nov. 2015 to Nov 2016

- Centre for Energy and Electric Power, Tshwane University of Technology, South Africa.
 - Host Professor: Prof. <u>J L Munda</u>, Associate Dean: Postgraduate Studies, Faculty of Engineering and the Built Environment, Tshwane University of Technology, South Africa.

Research Grants acknowledged

- Govt. Projected Grants Net worth of Rs. 78+ lakhs
 - Development of Low-Cost, Easy to Install, and High-Performance Indigenous Photo-Voltaic powered Inductive Wireless Power Transfer Charging System for Light Duty Electric Vehicles, DST- SERB Core Research grant, **45**, **23**,**814 INR**. (2019-2022). **PI**
 - ➤ Design and Development of a Resilient Building Integrated Photo-voltaic Grid Connected DC Fast Electric Vehicle Charging System for Indian Prospects, DST- SERB TARE, **18,30,000 INR**. (2019- 2022). **PI**
 - ➤ Department of Science and Technology (DST), Govt. of India Indo-U.S. Science and Technology Forum (IUSSTF) Bhaskara Advanced Solar Energy (BASE) Fellowship Program 2017. Northeastern University, Boston, USA 19000 USD (14, 65,000 INR), 2018. PI
 - Young Scientists Fellowship Scheme (YSFS), Tamil Nadu State Council for Science and Technology, 36,500 INR. PI

• External Industrial Projects

- > Singed MoU with WallVisionBV, Netherland company to Develop of Zigzag Solar for Indian operations A pilot study WallvisionBV, Netherlands- Estimated worth is **7000 EURO**
- > SEED Fund SRM University Bidirectional Inductive Wireless Power Transfer System for Electric Vehicle Charging; 2016, **250000 INR**.
- Establishment of Lab for student projects -Texas Instruments (TI) Innovation lab, 2500 USD worth Components.
- Team member for SRM and ICF hydrogen-based fuel cell-based train project.

Research consultancy Undertaken

- WallvisionBV, Netherlands.
- Energy management strategies and study, Blue crescent, Qatar.
- > TESCOM Pvt. Bangalore, India.
- ➤ KCP Solar Pvt. India.
- ➤ Bright Brothers Ltd, Pondicherry

Research collaborations Official

- Northeastern University, Boston, USA
- > Department of Energy, Aalborg University, Denmark.
- Electrical and hydropower lab, IIT Roorkee, India.
- Centre for Energy and Electric Power, Tshwane University of Technology, South Africa.
- > Department of Electrical engineering, University of South Africa.

> CSRI, South Africa.

Patent Applied

- ➤ Electric Vehicle Charging Schedule Module 1. Ref. No- 201841028208,
- ➤ Fourth Arm for Elimination Of Bearing Current In Inverter Fed Induction Motor Drive, Ref. No-201841022521.
- ➤ Three patents are in application stage.
- # All patent are solo inventor with SRM IST.

Notable Social and Technical Activity IEEE Activity

- Senior IEEE member, IEEE Smart City, USA Society, R&D, Member IE(I)
- *Lead Guest Editor*, Modeling, Design, and Control of Power Converters for AC and DC Microgrid Applications, Active and Passive Electronic Components Journal.
- Channel Reviewers in PELSs, PEDS, RES society IEEE transactions.

Research Publications

Scopus ID: 25031251100; ORCID ID: 0000-0003-2517-2119

H-index: 12;

- Journal Publication 57
 - SCI- 27 (including various IEEE transactions)
 - Scopus 22
- Conference Publication 32
 - IEEE, Elsevier 23
 - 3 Best paper Award
- Book Chapters 8+

Last 4 year Star Journal Publication

- [1] R. Narayanamoorthi, A. Vimala Juliet, and C. Bharatiraja, "Cross Interference Minimization and Simultaneous Wireless Power Transfer to Multiple Frequency Loads Using Frequency Bifurcation Approach," *IEEE Transactions on Power Electronics*, vol. 34, no. 11, pp. 10898–10909, Nov. 2019. [IF 7.224]
- [2] Thiyagarajan, S., Ankit Sonthalia, V. Edwin Geo, and **Bharatiraja Chokkalingam**. "Effect of Waste Exhaust Heat on Hydrogen Production and Its Utilization in CI Engine." International Journal of Hydrogen Energy, Elsevier, International Journal of Hydrogen Energy, vol. 45, no. 10, pp. 5987–5996, Feb. 2020. [IF-5.084]
- [3] **C.Bharatiraja** et.al., Design of a Novel Boomerang Trajectory for Sliding Mode Controller, *International Journal of Control, Automation, and Systems, springer*, Accepted- In press-2020. [IF -2.181]
- [4] **C.Bharatiraja** et.al., A Modified High Voltage Gain Quasi-Impedance Source Coupled Inductor Multilevel Inverter for Photovoltaic Application, *Energies*, vol. 13, no. 4, 2020. [IF-2.707]
- [5] **C. Bharatiraja**, R. Selvaraj, T. R. Chelliah, J. L. Munda, M. Tariq, and A. I. Maswood, "Design and Implementation of Fourth Arm for Elimination of Bearing Current in NPC-MLI-Fed Induction Motor Drive," *IEEE Transactions on Industry Applications*, vol. 54, no. 1, pp. 745–754, Jan. 2018. [IF -3.347]
- [6] **C. Bharatiraja**, S. Jeevananthan and JL munda "Timing Correction Algorithm for SVPWM Based Diode-Clamped MLI Operated in overmodulation Region", in *IEEE journal of Selected topics in Power Electronics applications*. vol. 6, no. 1, pp. 233-245, Mar. 2018. [IF-5.924]
- [7] R. Selvaraj, K. Desingu, T. R. Chelliah, D. Khare, and **C. Bharatiraja**, "Fault Tolerant Operation of Parallel-Connected 3L-Neutral-Point Clamped Back-to-Back Converters Serving to Large Hydro-Generating Units," *IEEE Transactions on Industry Applications*, vol. 54, no. 5, pp. 5429–5443, Sep. 2018. [IF-3.347]

- [8] N. R., V. A., and C. Bharatiraja, "Frequency Splitting based Wireless Power Transfer and Simultaneous Propulsion Generation to Multiple Micro-Robots," *IEEE sensor*, vol. 18, Issue: 13, July1, 1 2018. [IF-3.076]
- [9] M. Tariq, M. Meraj, A. Azeem, A. I. Maswood, A. Iqbal, and C. Bharatiraja,, "Evaluation of Level-Shifted and Phase-Shifted PWM Schemes for Seven Level Single-Phase Packed U Cell Inverter," *IEEE*, *CPSS Transactions on Power Electronics and Applications*, vol. 3, no. 3, pp. 232–242, Sep. 2018. [IF-3.076]
- [10] S. Gopinath, K. Sathiyasekar, S. Padmanaban, and **B. Chokkalingam**, "Insulation condition assessment of high-voltage rotating machines using hybrid techniques," *IET Generation, Transmission & Distribution*, vol. 13, no. 2, pp. 171–180, Jan. 2019. [IF-3.229]
- [11] **C.Bharatiraja**, S. Jeevananthan, S, R. Latha, and V.Mohan, "Vector selection approach-based hexagonal hysteresis space vector current controller for a three phase diode clamped MLI with capacitor voltage balancing", *IET Power Electronics*., vol. 9, no. 7, pp. 1350-1361, June 2016. [IF-3.2]
- [12] Madasamy, P., V. Suresh Kumar, P. Sanjeevikumar, Jens Bo Holm-Nielsen, Eklas Hosain, and C. Bharatiraja. "A Three-Phase Transformerless T-Type- NPC-MLI for Grid Connected PV Systems with Common-Mode Leakage Current Mitigation". Energies, 12, no. 12 (June 24, 2019): 2434. [IF-2.707]
- [13] P. Madasamy, R. K. Pongiannan, S. Ravichandran, S. Padmanaban, **B. Chokkalingam**, E. Hossain, and Y. Adedayo, "A Simple Multilevel Space Vector Modulation Technique and MATLAB System Generator Built FPGA Implementation for Three-Level Neutral-Point Clamped Inverter," **Energies**, vol. 12, no. 22, p. 4332, Nov. 2019. [IF-2.707]
- [14] K. Suresh, N. Chellammal, C. Bharatiraja, P. Sanjeevikumar, F. Blaabjerg, and J. B. H. Nielsen, "Cost-efficient nonisolated three-port DC-DC converter for EV/HEV applications with energy storage," International Transactions on Electrical Energy Systems, vol. 29, no. 10, Jun. 2019. [IF-1.314]
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- [19] Kasilingam F, Jagadeesh Pasupuleti, **C Bharatiraja**, Yusuff Adedayo, "Single Machine Connected Infinite Bus System Tuning Coordination Control using Biogeography-Based Optimization Algorithm," FME Transactions; 2019;47(3):503-510. [IF-0.9]
- [20] D. A. Savio, V. A. Juliet, C. Bharatiraja, S. Padmanaban, J. B. Holm-Nielsen, and F. Blaabjerg, "Photovoltaic Integrated Hybrid Microgrid Structured Electric Vehicle Charging Station and Its Energy Management Approach," | Energies, vol. 12, no. 1, p. 168, Jan. 2019. [IF-2.707]
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- [22] **C.Bharatiraja**, et.al, "Energy Management Strategy for Rural Communities' DC Micro Grid Power System Structure with Maximum Penetration of Renewable Energy Sources," Applied Sciences, vol. 8, no. 4, p. 585, Apr. 2018. [IF-2.217]
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- [27] **C. Bharatiraja**, S. Jeevananthan, J.L. Munda, and R. Latha, "Improved SVPWM vector selection approaches in OVM region to reduce common-mode voltage for three-level neutral point clamped inverter", International Journal of Electrical Power & Energy Systems/ Elsevier, vol. 79, no. 1, pp. 285–297, Oct. 2016. [IF-4.418]
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- [37] **C.Bharatiraja**, Aishwarya Ravi, Sanchari Banerjee, Abhishek Chakraborty, "A Hybrid Cascaded Multilevel Inverter with Diode Assisted Boosting Network", Energy Procedia, Vol.117,2017, pp.1024–1031,June, 2017. [IF-1.15]
- [38] Soham Chatterjee, ArchanaIyer, **C. Bharatiraja**, Ishan Vaghasia, Valiveti Rajesh, "Design Optimization for an Efficient Wireless Power Transfer System for Electric Vehicles", Energy Procedia/ Elsevier, Vol.117, pp.1015-1023, June 2017. [IF-1.15]

- [39] C Bharatiraja, N Sriramsai, "Investigation of the Common Mode Voltage for a Neutral-Point-Clamped Multilevel Inverter Drive and its Innovative Elimination through SVPWM Switching-State Redundancy", in International Journal of Power Electronics and Drive Systems, vol.3, no.7, pp. 892-900, Dec 2016. [IF1.088]
- [40] **C Bharatiraja**, JL Munda, Ishan Vaghasia, Rajesh Valiveti, P. Manasa, "Low cost Real Time Centralized Speed Control of DC Motor Using Lab view -NI USB 6008", in International Journal of Power Electronics and Drive Systems, vol.3, no.7, pp. 656-664, Dec 2016 [IF-1.088]
- [41] **C. Bharatiraja**, Reddy, H. Sri Ramsai, N, Saisuma, S.S. "FPGA based design and validation of asymmetrical reduced switch multilevel inverter", in International Journal of Power Electronics and Drive Systems, vol.7, no.2, pp. 340-348, June 2016. [IF-1.088]
- [42] K. Ramesh, C. Bharatiraja, S. Raghu, G. Vijayalakshmi, and P. Sambanthan, "Design and Implementation of Real Time Charging Optimization for Hybrid Electric Vehicles," International Journal of Power Electronics and Drive Systems, vol. 7, no. 4, p. 1261, Dec. 2016. [IF-1.088]
- [43] T.K.S Sathayanarayanan, M Ramasamy, **C.Bharatiraja**, JL Munda "Modelling, Impedance Design, and Efficiency Analysis of Battery Assists PV tied Quasi-Z source inverter", in International Journal of Power Electronics and Drive Systems, vol.3, no.7, pp. 816-825, Dec 2016. [IF-1.088]

Professional Society Membership and Activities

- o Life Member of IE(I)
- Life Member of ISTE
- o Member of IET (ID-1100390047)
- o Member of IEEE-PELS (ID- 92049333)
- Member of ISCA

Awards, Honors, & Recognitions

- DST Fellowship Indo-U.S. Science and Technology Forum (IUSSTF) Bhaskara Advanced Solar Energy (BASE) Fellowship Program 2017.
- Received Gold medal for the Best research paper at SRM University Research Day 2014
- Received Research incentive for good research publication in 2013,2014,2015,2016.
- Best Innovation Project award at Texas Instruments Innovation Challenge: India Analog Design Contest 2014.
- Top team list in Mahindra Rise Prize: Solar Challenge 2014.
- Best research paper Award –ESA 2012 conference, Colombo, Srilanka.
- Best paper Award –IET 2012 conference, Chennai, India.
- Best paper Award IEEE conference, ISCAE, Malaysia 2016

Workshop and FDP attended: 30+ **Workshop and FDP organised**: 10+

Lecture delivered in Workshop and FDP: 50+

Journal and Conference Editorial and Reviewer Activates

- Associate Editor, Recent Advances in Electrical & Electronic Engineering, Bentham Science Publishers.
- Lead Guest Editor, Special Issue, Hindawi publications, and 2018.
- Associate Editor, Recent Advances in Electrical & Electronic Engineering
- Reviewer, IEEE TPE, TIE, TIA, Sensor, Access, JSTPEA, IAS IAC, 2013–Present.
- Reviewer, IET, Power Electronics, RPG, GTS, 2014–Present.
- Reviewer, Journal Power Electronics, 2016–Present.
- Reviewer, European Transactions on Electric Power (Wiley), 2013–Present.
- Reviewer, Sustainable Energy Technologies, and Assessments (Elsevier), 2014–Present.

- Reviewer, Energy Conversion and Management (Elsevier), 2014–Present.
- Reviewer, Electric Power Components and Systems Journal (Taylor and Francis), 2014–Present.
- Reviewer, Journal of Electrical Engineering & Technology, 2013–Present.
- ➤ Reviewer, COMPEL, APEC, PEDS, TCON, PCON, IEEE Conferences.—Present.

Personal Details:

Father name	K. Chokkalingam,,Retd. Police TN
Date of Birth/Age	08 th January 1980 /37 years old
Languages known	Tamil, English
Marital status	Married (R. Latha)- House wife
Children	B.Kowsik, 10 years old, Male child studying 6 th Std.
Passport No.	E5765463
Permanent Address	39, Blossom Avenue, Mahindra world city, Chengalpattu, TN-603 002.
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References

1. Prof. Brad Lehman,

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Northeastern University, 360 Huntington Ave, Boston, MA 02115
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2. Josiah Munda, DEng PrEng

Associate Dean: Postgraduate Studies, Research & Innovation Professor and HoD: Department of Electrical Engineering Faculty of Engineering and the Built Environment, Bldg 6:G16 (Pretoria Campus), South Africa.

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3. Prof. Frede Blaabjerg

IEEE Fellow

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4. Dr.S.Jeevananthan M.E., Ph.D., MISTE, MSSI, AMIE, MSEMCE.

Professor, Department of Electrical and Electronics Engineering

Pondicherry Engineering College

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I declare that the information given above is true and correct. Further I understand that any discrepancy/incorrect information discovered later will result in cancellation of my candidature.

Date: 20.20.2020

Place: Chennai	(C. Bharatiraja)