

List of Publications

Transactions and Journals:

1. K.D.T. Ngo, Santanu Mishra, and S. Thekkevalappil, "Pulse-width modulator with carriers derived from converter waveforms," *IEE Electronic Letters*, Feb 2005.
2. K.D.T. Ngo, Santanu Mishra, and M. Walters, "Synthetic ripple modulator for synchronous buck converter," in *IEEE Power Electron. Letters*, vol. 3, pp. 148-151, Dec. 2005.
3. Santanu Mishra and Khai Ngo, "Dynamic Characterization of the Synthetic Ripple Modulator in a Tightly Regulated Distributed Power Application," in *IEEE Tran. On Ind. Electronics*, vol. 56, pp. 1164-1173, Apr. 2009.
4. Santanu Mishra, "Design Oriented Analysis of Modern Active Droop Controlled Power Supplies," in *IEEE Tran. On Ind. Electronics*, vol. 56, pp. 3704-3708, Sept. 2009.
5. Santanu Mishra and Xingsheng Zhou, "Design consideration for a low voltage high current voltage regulator modulator system," in *IEEE Tran. On Ind. Electronics*, pp. 1330-1338, April 2011.
6. Santanu Mishra, Kapil Jha, and Khai D. T. Ngo, "Dynamic Linearizing Modulator for Large-signal Linearization of a Boost Converter," in *IEEE Tran. On Power Electronics*, vol. 26, pp. 3046-3054, Oct. 2011.
7. Saurabh Upadhyay, Santanu Mishra, and Avinash Joshi, "A Wide Bandwidth Electronic Load," in *IEEE Tran. On Ind. Electronics*, vol. 59, pp. 733-739, Feb 2012.
8. Santanu Mishra, Ravindranath Adda, and Avinash Joshi, "Inverse Watkins-Johnson Topology based Inverter," in *IEEE Tran. On Power Electronics*, Vol. 27, pp.1066-1070, March 2012.
9. Rajeev Singh and Santanu Mishra "A Magnetically Coupled Feedback-Clamped Optimal Bi-directional Battery Charger," in *IEEE Tran. On Industrial Electronics*, Vol. 60, pp. 422 – 432, Feb. 2013.
10. Ravindranath Adda, Olive Ray, Santanu Mishra, and Avinash Joshi, "Synchronous Reference Frame Based Control of Switched Boost Inverter for Standalone DC Nanogrid Applications," in *IEEE Tran. On Power Electronics*, Vol. 28, pp. 1219 – 1233, Mar. 2013.
11. Rajeev Singh and Santanu Mishra "Synthetic Ripple Based Digital Hysteretic Modulator for Point-of-Load Converters," in *IEEE Trans. On Ind. Electronics*, Vol.60, pp. 4996 – 5007, Nov. 2013.
12. Ravindranath Adda, Santanu Mishra, and Avinash Joshi, "Analysis and PWM Control of Switched Boost Inverter," in *IEEE Trans. On Ind. Electronics*, Vol. 60, pp. 5593 – 5602, Nov. 2013.
13. Olive Ray and Santanu Mishra, "Boost-Derived Hybrid Converter with simultaneous DC and AC outputs," in *IEEE Trans. On Industry Applications*, Vol. 50, No. 2, pp. 1082-1093, Mar./Apr. 2014.
14. Soumya S. Nag and Santanu Mishra, "Current-fed Switched Inverter," in *IEEE Tran. On Industrial Electronics*, Vol. 61, No. 9, pp. 4680-4690, Sept. 2014.
15. Olive Ray, Anil Prasad, Santanu Mishra, and Avinash Joshi, "Integrated Dual Output Converter," in *IEEE Trans. On Ind. Electronics*, vol. 62, pp. 371-382, Jan. 2015.
16. Kapil Jha, Santanu Mishra, and Avinash Joshi, "High-Quality Sine Wave Generation Using a Differential Boost Inverter at Higher Operating Frequency," in *IEEE Tran. On Industrial Electronics*, vol. 51, pp. 373-384, Jan. 2015.
17. Kapil Jha, Santanu Mishra, and Avinash Joshi, "Boost Amplifier based Power-Hardware-in-the-Loop Simulator," in *IEEE Tran. On Industrial Electronics*, vol. 62, pp.7479-7488, Dec. 2015.
18. Santanu Mishra, Ravindrath Adda, Saurabh Sekhar, Avinash Joshi, and Akshay Rathore, "A Study of Power Transfer using Portable Surfaces in Capacitively Coupled Power Transfer Technology", in *IET Power Electronics*, vol. 9, pp. 997-1008, 2016. **(Received Premium Paper Award from IET, 2018)**
19. Soumya S. Nag, Santanu Mishra, Avinash Joshi, "A Passive Filter Building Block for Zero Ripple Input or Output Current in a DC-DC Power Converter," in *IEEE-Journal of Emerging and Selected Topics in Power Electronics*, vol. 4, pp. 564-575, Jun. 2016.
20. Soumya S. Nag and Santanu Mishra, "A Coupled Inductor Based High Boost Inverter with Sub-Unity Turns-Ratio Range," in *IEEE Trans. On Power Electronics*, Vol. 31, pp. 7534-7543, Nov. 2016.
21. Olive Ray and Santanu Mishra, "A Constant-frequency Shoot-through Sine-PWM scheme for Three-phase Single-Input-Hybrid-Output converter", in *IET Power Electron.*, Vol. 9, pp. 1819–1827, 2016.
22. Santanu K. Mishra, A. Maji and S. S. Nag, "Improving Grid Power Availability in Rural Telecom Exchanges," in *IEEE Transactions on Industry Applications*, vol. 54, no. 1, pp. 636-646, Jan.-Feb. 2018.
23. Ramanuja Panigrahi and Santanu K. Mishra, "An Electrical Model of a Dielectric Elastomer Generator," in *IEEE Transactions on Power Electronics*, vol. 33, no. 4, pp. 2792-2797, April 2018.

24. Santanu K. Mishra, "Power Supplies for Consumer Electronic Devices," accepted in *IEEE Potential*, 2017.
25. Ramanuja Panigrahi, Santanu K. Mishra, A. K. Srivastava and S. Basu, "Analysis, Design, and Implementation of an Elastomer Generator Based Energy Harvesting Scheme," accepted in *IEEE Transactions on Industrial Electronics*, 2018.
26. Anil Gambhir, Santanu K. Mishra and Avinash Joshi, "Power Frequency Harmonic Reduction and its Re-Distribution for Improved Filter Design in Current-fed Switched Inverter," accepted in *IEEE Transactions on Industrial Electronics*, 2018.
27. Rajat Channappanavar, Santanu K. Mishra and Rajeev Singh, "An Inductor Current Estimator for Digitally Controlled Synchronous Buck Converter," accepted in *IEEE Transactions on Power Electronics*, 2018.
28. Anil Gambhir, Santanu K. Mishra and Avinash Joshi, "A Modified PWM Scheme to Improve Performance of a Single-Phase Active Front End Impedance Source Inverter," accepted in *IEEE Transactions on Industry Applications*, 2018.
29. Santanu K. Mishra, Khired Kumar Nayak, Mandeep Singh Rana, and Vimala Dharmarajan, "Switched-Boost Action Based Multi-port Converter," in accepted in *IEEE Transactions on Industry Applications*, 2018.

National Journal:

1. Olive Ray and Santanu Mishra, "Switched-boost Action: A phenomenon for achieving Time-division multiplexed Multi-port Power Transfer for nano-grid Applications," in Sadhana, Indian Academy of Sciences, June 2017.

Conference:

1. Santanu Mishra, Steve Zhou, Wenkang Huang, and George Schuellein, "Design of redundant paralleled multiphase VRM system with improved efficiency and dynamic response," *IEEE-Industry Application Society Annual conference*, Tampa, FL, pp. 2524-2528, Sept. 2006.
2. Santanu Mishra and Khai Ngo, "Dynamic Response Optimization of the Synthetic Ripple Modulator for a Point-of-Load Converter with Adaptive Voltage Positioning," in *IEEE Proceedings on Compatibility and Power Electronics (CPE)*, Badajoz, Spain, pp. 402-405, May 2009.
3. Santanu Mishra, "Dynamic Modeling of a hysteretic modulator," in *IEEE International Symposium on Industrial Electronics (ISIE)*, Bari Italy, pp. 798-802, July 2010.
4. Kapil Jha and Santanu Mishra, "Large signal linearization of boost converter," in *IEEE-Energy Conversion Congress and Exposition (ECCE 10)*, Atlanta, GA, pp. 4140-4144, Sept. 2010.
5. Saurabh Upadhyay, Ravindranath Adda, Santanu Mishra, and Avinash Joshi, "A Switched-Boost Topology for Renewable Power Application," in *IEEE-International Power Engineering Conference (IPEC)*, Singapore, pp. 758-762, Oct. 2010.
6. Saurabh Upadhyay, Ravindranath Adda, Santanu Mishra, and Avinash Joshi, "Derivation and Characterization of Switched-Boost Inverter," in *IEEE-14th European Conference on Power Electronics and Applications – EPE 2011*, Birmingham, pp. 1-10, Aug. 2011.
7. Rajeev Singh and Santanu Mishra, "A Modified Average Current-Mode Controller for Converter-Based Optimal Battery Charging," in *IEEE- Vehicle Power and Propulsion Conference (VPPC)*, Chicago, IL, pp.1-6, Sep-2011.
8. Rajeev Singh and Santanu Mishra, "A Novel Feedback-Clamped Magnetically Coupled Bi-Directional Optimal Battery Charging System," in *IEEE-ECCE 2011*, Phoenix, pp. 1202-1209, Sept. 2011.
9. Santanu Mishra, Ravindranath Adda, and Avinash Joshi, "Switched-boost Inverter based on Inverse Watkins-Johnson Topology," in *IEEE-ECCE 2011*, Phoenix, pp. 4208-4211, Sept. 2011.
10. Ravindranath Adda, Santanu Mishra and Avinash Joshi, "A PWM Control Strategy for Switched-Boost Inverter," in *IEEE-ECCE 2011*, Phoenix, pp. 991-996, Sept. 2011.
11. Rajeev Singh and Santanu Mishra, "A Feedback-Clamped Average Current Mode Controller Based Universal and Adaptive Optimal Battery Charging System," *Indian Institute of Sciences Centenary Conference, 2011-Electrical Engineering (CCEE)*, pp. 101-106, Dec.2011.
12. Kapil Jha and Santanu Mishra, "Large-signal Linearization of a Boost Converter using The Dynamic Linearizing Modulator," *Indian Institute of Sciences Centenary Conference, 2011-Electrical Engineering (CCEE)*, pp. 107-112, Dec.2011.
13. Rajeev Singh and Santanu Mishra, "A Versatile Control Modulator for Optimal Bi-directional Battery Charging," in *IEEE Power Electronics, Machines and Drives Conference (PEMD 2012)*, 29 March 2012, pp.1-5, University of Bristol, UK.

14. Rajeev Singh, Makarand Mijar, Ankur Mishra, and Santanu Mishra, "Digital Synthetic Ripple Modulator for Point-of-Load Converters," in *IEEE Power Electronics, Machines and Drives Conference (PEMD 2012)*, 29 March 2012, pp.1-5, University of Bristol, UK.
15. Kapil Jha and Santanu Mishra, "Dynamic Analysis of a Linearizing Modulator for a Boost Converter," in *IEEE Power Electronics, Machines and Drives Conference (PEMD 2012)*, 29 March 2012, pp.1-5, University of Bristol, UK.
16. Rajeev Kumar Singh and Santanu Mishra, "A Novel Carrier Generation Based Fully Digital Hysteretic Modulator for Point-of-load Converters," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2012*, pp. 364-371, Raleigh, NC, Sept. 2012.
17. Ravindranath Adda, Olive Ray, Santanu Mishra, and Avinash Joshi, "Implementation and Control of Switched Boost Inverter for DC Nanogrid Applications," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2012*, pp. 3811-3818, Raleigh, NC, Sept. 2012.
18. Olive Ray, Santanu Mishra, and Avinash Joshi, "Implementation and Control of a Bidirectional High-Gain Transformer-less Standalone Inverter," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2012*, pp. 3233-3240, Raleigh, NC, Sept. 2012.
19. Olive Ray and Santanu Mishra, "A Modified Boost Topology with Simultaneous AC and DC Load," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2012*, pp. 2454-2459, Raleigh, NC, Sept. 2012.
20. Rajeev Kumar Singh and Santanu Mishra, "A Digital Feedback Clamped Synthetic Ripple Based Hysteretic Modulator for Optimal Battery Charging," in *IEEE-IECON 2012*, ÉTS, Montréal, Canada, pp. 62-67, 25 – 28 October 2012. **(Best Paper in Session)**
21. Ravindranath Adda, Olive Ray, Santanu Mishra and Avinash Joshi, "DSP based PWM control of Switched Boost Inverter for DC Nanogrid applications," in *IEEE-IECON 2012*, ÉTS, Montréal, Canada, pp. 5285-5290, 25 – 28 October 2012.
22. Rajeev Singh and Santanu Mishra, "A digital optimal battery charger with the inbuilt fault detection property," in *IEEE-PEDES*, Bangalore, India, Dec. 2012.
23. Kapil Jha and Santanu Mishra, "A Dynamic Linearizing Modulator Based Boost Inverter," in *IEEE Applied Power Electronics Conference & Expo, (APEC 13)*, pp. 2369-2374, 17 March 2013, Long Beach, CA.
24. Ravindranath Adda, Olive Ray, Santanu Mishra, and Avinash Joshi, "Single Phase Utility Interactive Switched Boost Inverter for Renewable Energy Based Residential Power Applications," in *IEEE Applied Power Electronics Conference & Expo*, 17 March 2013 (*APEC 13*), pp. 3283-3287, Long Beach, CA.
25. Olive Ray, Anil J., and Santanu Mishra, "A Multi-port DC-DC Converter topology with simultaneous Buck and Boost outputs," in *ISIE'13*, pp.1-6, Taipei, Taiwan.
26. Arun Shankar U., Soumya Subhra Nag, and Santanu Mishra, "Multi-input Single-Control Battery Charger for DC Nano-grids," in *IEEE ECCE –Asia* (downunder), Melbourne Australia, pp. 304-310, June 3-6 2013.
27. Saurabh Shekhar, Santanu Mishra and Avinash Joshi, "A Utility Interfaced Half-Bridge Based Capacitively Coupled Power Transfer Circuit with Automatic Frequency Control," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2013*, Denver, CO, pp.1598-1602, Sept. 15-19, 2013.
28. Soumya Shubhra Nag and Santanu Mishra, "Current-Fed DC/DC Topology Based Inverter," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2013*, Denver, CO, pp. 2751-2756, Sept. 15-19, 2013.
29. Ravindranath Adda, Avinash Joshi and Santanu Mishra, "Pulse Width Modulation of Three Phase Switched Boost Inverter," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2013*, Denver, CO, pp. 769-774, Sept. 15-19, 2013.
30. Olive Ray and Santanu Mishra, "A Multi-port converter topology with simultaneous Isolated and Non-Isolated Outputs," in *IEEE-Industrial Electronics Conference (IECON 2013)*, Vienna, Austria, pp. 7116-7121, Nov. 2013.
31. Soumya Shubhra Nag, Ravindranath Adda, Olive Ray, and Santanu Mishra, "Current-Fed Switched Inverter Based Hybrid Topology for DC Nanogrid Application," in *IEEE-Industrial Electronics Conference (IECON 2013)*, Vienna, Austria, pp. 7144-7149, Nov. 2013. **(Best Paper in Session)**
32. Kapil Jha and Santanu Mishra, "Improving the Large Signal Gain of Dynamic Linearizing Modulator Controlled Boost Converter," in *IEEE-Industrial Electronics Conference (IECON 2013)*, Vienna, Austria, pp. 880-885, Nov. 2013.

33. Santanu Mishra and Olive Ray, "Advances in Nanogrid Technology and Its Integration into Rural Electrification in India," in *IEEE IPEC-Hiroshima 2014 –ECCE ASIA*, Hiroshima, Japan. (*Invited Paper*)
34. Soumya Shubra Nag and Santanu Mishra, "Coupled Inductor Based Current-Fed Switched Inverter for Low Voltage Renewable Interface," in *IEEE IPEC-Hiroshima 2014 –ECCE ASIA*, Hiroshima, Japan. (*Invited Paper*)
35. Olive Ray, Vimala Dharmarajan, Santanu Mishra, and Prasad Enjeti, "Analysis and PWM Control of Three-Phase Boost-Derived Hybrid Converter," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2014*, Pittsburgh, PA, USA, in September 14-18, 2014.
36. Ravindranath Adda, Avinash Joshi, and Santanu Mishra, "Output Voltage Control of 3-phase Switched Boost Inverter for Standalone Renewable Energy Based Distribution Generation Systems," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2014*, Pittsburgh, PA, USA, in September 14-18, 2014.
37. Soumya Nag, Arun Sankar, Santanu Mishra, and Avinash Joshi, "Input Current Ripple Cancellation of Current-Fed Switched Inverter," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2014*, Pittsburgh, PA, USA, in September 14-18, 2014.
38. Soumya Nag and Santanu Mishra, "Improved Trans-Current-Fed Switched Inverter," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2014*, Pittsburgh, PA, USA, September 14-18, 2014.
39. Arun Shankar, Santanu Mishra, K. Viswanathan, and Rajendra Naik, "Control of a Series Input Boost Pre-regulator with Unbalanced Load," in *IEEE Ind. Elect. Society Annual Meeting (IECON)*, Dallas, TX, 2014.
40. Jinia Roy, Olive Ray, and Santanu Mishra, "Maximizing Power Harvest of a large PV Farm," in *IEEE Ind. Elect. Society Annual Meeting (IECON)*, Dallas, TX, 2014. (*Best Paper in Session*)
41. Kapil Jha and Santanu Mishra, "Boost based Power Amplifier for Power Hardware in Loop Simulations," in *IEEE-Power Electronics Drives and Energy Systems Conference (PEDES)*, Mumbai, 2014.
42. Soumya Shubhra Nag and Santanu Mishra, "Family of Current-Fed Switched Inverter Derived Inverters," in *IEEE-Power Electronics Drives and Energy Systems Conference (PEDES)*, Mumbai, 2014.
43. Soumya Shubhra Nag and Santanu Mishra, "Three Winding Coupled Inductor Based High Boost Inverter with Increased Gain Control," in *IEEE-Energy Conversion Congress and Exposition 2015*, pp. 2034 – 2039, Montreal. CA.
44. Abhishek Maji, Soumya S. Nag, and Santanu Mishra, "A Universal-Phase Rectifier Architecture for Rural Telecom Exchanges in Developing Countries," in *IEEE-Industry Application Society Annual Meeting 2015*, Dallas, TX. (*Conference Prize paper Award, 3rd Prize*)
45. Soumya S. Nag and Santanu Mishra, "Coupled Inductor Based Current-Fed DC-DC Bridge Converters," accepted in *IEEE- Industry Application Society Annual Meeting 2015*, Dallas, TX.
46. Olive Ray and Santanu Mishra, "Integrated Hybrid Output Converter as Power Router for Renewable-based Nanogrids," in *IEEE Ind. Elect. Society Annual Meeting 2015 (IECON)*, pp. 1645 - 1650 Yokohama, Japan.
47. Kapil Jha, Santanu Mishra, and Avinash Joshi, "Boost-based Amplifier for Power-Hardware-in-the-loop Simulations of Utility-Tied DG," in *IEEE Ind. Elect. Society Annual Meeting 2015 (IECON)*, pp. 3242 - 3247 Yokohama, Japan.
48. Olive Ray and Santanu Mishra, "Switched-boost Action: A phenomenon for achieving Time-division multiplexed Multi-port Power Transfer for nano grid applications," presented in *NPEC 2015*, IIT Bombay.
49. Soumya Shubhra Nag and Santanu Mishra, "Synthesis of Buck Converter Based Current Sources," accepted in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2016*, Milwaukee, WI.
50. Anil Gambhir and Santanu K. Mishra, "Control algorithm for a zone-less induction cooktop," *2016 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Trivandrum, 2016, pp. 1-5.
51. Rajat Channappanavar and Santanu K. Mishra, "Current sensorless Power Factor correction circuit using FPGA," *2016 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Trivandrum, 2016, pp. 1-6.
52. Anil Gambhir and Santanu Mishra "Low Frequency Current Ripple Reduction of a Current-fed Switched Inverter," in *IEEE-ECCE 2017*.
53. Rajat Channappanavar and Santanu Mishra, "A novel current estimation technique for digital controlled switching converters operating in CCM and DCM ," in *IEEE-ECCE 2017*.

54. Ramanuja Panigrahi and Santanu Mishra, Arpit Srivastava, and Sumit Basu, "An Energy Harvesting Scheme for Dielectric Elastomer Generators, in *IEEE-ECCE 2017*, pp. 4741 - 4746.
55. Santanu K. Mishra and Khirod Kumar Nayak, "Boost Topology Based Multi-Output Converter," in *IEEE IAS Annual Meeting*, Cincinnati, OH, Oct. 2017.
56. Soumya Shubhra Nag, Suman Mandal, Santanu Mishra, "Solar PV Based DC Power Supply for Rural Homes with Analog, Multiplier-less MPPT Controller," in *IEEE-IECON*, Beijing, 2017.
57. Anil Gambhir and Santanu Mishra, "Expanding the CCM Boundary of a Current-fed Switched Inverter," in *IEEE APEC 2018*, San Antonio, TX.
58. Rajat Channapannavar and Santanu Mishra, "A novel Bidirectional current sensor for digital controlled DC-DC converters," in *IEEE APEC 2018*, San Antonio, TX.
59. Rajat Channapannavar and Santanu Mishra, "Impact of Non-Linear Commutation Delay on the Performance of Inductor Current Estimation Techniques," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2018*, Portland, OR.
60. Rajat Channapannavar and Santanu Mishra, "A Review of Compensator Design for Digital Controller Implementation for DC-DC Converters," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2018*, Portland, OR.
61. Anil Gambhir and Santanu Mishra, "Variable duty cycle approach to improve CCM Boundary range of Current-fed Switched Inverter with Modified PWM scheme," in *IEEE-Energy Conversion Congress and Exposition (ECCE) 2018*, Portland, OR.
62. Ramanuja Panigrahi, Santanu K. Mishra, and S. C. Srivastava, "Grid Integration of Small-Scale Photovoltaic Systems: A Review," in *IEEE IAS Annual Meeting*, 2018, Portland, OR.
63. Divya Yogi, Anil Gambhir and Santanu Mishra, "Zero Current Switching of CFSI using Auxiliary Circuit," in *IEEE-Power Electronics Drives and Energy Systems Conference (PEDES)*, Madras, 2018.
64. Sonam Acharya, Nitin Singh Chauhan and Santanu Mishra, "Replacing Si-IGBT by SiC-Mosfet in high gain inverter: challenges and opportunities," in *IEEE-Power Electronics Drives and Energy Systems Conference (PEDES)*, Madras, 2018.
65. Rajat Channapannavar and Santanu Mishra, "Titled Digital Current Hysteresis Controller Based on Wide Bandwidth Inductor Current Estimation" in *IEEE-Power Electronics Drives and Energy Systems Conference (PEDES)*, Madras, 2018.
66. Sonam Acharya and Santanu Mishra, "Design and analysis of interleaved current-fed switched inverter," in *IEEE APEC 2019*, Anaheim, CA.