Bibliography

[1] A. Iqbal, S. Gore, P. K. Maroti, S. Islam, M. Meraj, and M. Marzband, "A new triswitching double duty high voltage gain boost converter for dc nanogrid application," *IEEE Transactions on Industry Applications*, pp. 1–9, 2023.

[2] M. Samiullah, M. S. Bhaskar, M. Meraj, A. Iqbal, I. Ashraf, and H. Komurcugil, "High gain switched-inductor-double-leg converter with wide duty range for dc microgrid," *IEEE Transactions on Industrial Electronics*, vol. 68, no. 10, pp. 9561–9573, 2021.

[3] O. Husev, L. Liivik, F. Blaabjerg, A. Chub, D. Vinnikov, and I. Roasto, "Galvanically isolated quasi-z-source dc–dc converter with a novel zvs and zcs technique," *IEEE Transactions on Industrial Electronics*, vol. 62, no. 12, pp. 7547–7556, 2015.

[4] Y. P. Siwakoti, F. Blaabjerg, and P. C. Loh, "New magnetically coupled impedance (z-) source networks," *IEEE Transactions on Power Electronics*, vol. 31, no. 11, pp. 7419–7435, 2016.

[5] D. M. Robert W. Erickson, "Fundamentals of power electronics, 2nd edition new york, ny," *Springer*, 2001.

[6] B. Axelrod, Y. Berkovich, and A. Ioinovici, "Switched-capacitor/switched-inductor structures for getting transformerless hybrid dc–dc pwm converters," *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 55, no. 2, pp. 687–696, 2008.

[7] M. Z. Y. Jiao, F.L. Luo, "Voltage-lift-type switched-inductor cells for enhancing dc–dc boost ability: principles and integrations in luo converter," *IET Power Electronics*, vol. 4, no. 1, p. 131–142, 2011.

[8] Y. Tang, T. Wang, and D. Fu, "Multicell switched-inductor/switched-capacitor combined active-network converters," *IEEE Transactions on Power Electronics*, vol. 30, no. 4, pp. 2063–2072, 2015.

[9] Y. Ye and K. W. E. Cheng, "A family of single-stage switched-capacitor–inductor pwm converters," *IEEE Transactions on Power Electronics*, vol. 28, no. 11, pp. 5196–5205, 2013.

[10] L.-S. Yang, T.-J. Liang, and J.-F. Chen, "Transformerless dc–dc converters with high step-up voltage gain," *IEEE Transactions on Industrial Electronics*, vol. 56, no. 8, pp. 3144–3152, 2009.

[11] Y. Tang, D. Fu, T. Wang, and Z. Xu, "Hybrid switched-inductor converters for high step-up conversion," *IEEE Transactions on Industrial Electronics*, vol. 62, no. 3, pp. 1480–1490, 2015.

[12] E. H. Ismail, M. A. Al-Saffar, A. J. Sabzali, and A. A. Fardoun, "A family of single-switch pwm converters with high step-up conversion ratio," *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 55, no. 4, pp. 1159–1171, 2008.

[13] M. Prudente, L. Pfitscher, and R. Gules, "A boost converter with voltage multiplier cells," in *2005 IEEE 36th Power Electronics Specialists Conference*, 2005, pp. 2716–2721.

[14] A. A. Fardoun and E. H. Ismail, "Ultra step-up dc–dc converter with reduced switch stress," *IEEE Transactions on Industry Applications*, vol. 46, no. 5, pp. 2025–2034, 2010.

[15] K. I. Hwu and Y. T. Yau, "High step-up converter based on charge pump and boost converter," *IEEE Transactions on Power Electronics*, vol. 27, no. 5, pp. 2484–2494, 2012.

[16] X. Hu and C. Gong, "A high gain input-parallel output-series dc/dc converter with dual coupled inductors," *IEEE Transactions on Power Electronics*, vol. 30, no. 3, pp. 1306–1317, 2015.

[17] G. Palumbo and D. Pappalardo, "Charge pump circuits: An overview on design strategies and topologies," *IEEE Circuits and Systems Magazine*, vol. 10, no. 1, pp. 31–45, 2010.

[18] H. Shu-Hung Chung, "Design and analysis of a switched-capacitor-based step-up dc/dc converter with continuous input current," *IEEE Transactions on Circuits and Systems I: Fundamental Theory and Applications*, vol. 46, no. 6, pp. 722–730, 1999.

[19] M. Ortiz-Lopez, "Modelling and analysis of switch-mode cascade converters with a single active switch," *IET Power Electronics*, vol. 1, pp. 478–487(9), December 2008.

[20] S.-M. Chen, T.-J. Liang, L.-S. Yang, and J.-F. Chen, "A cascaded high step-up dc–dc converter with single switch for microsource applications," *IEEE Transactions on Power Electronics*, vol. 26, no. 4, pp. 1146–1153, 2011.

[21] W. Li, Y. Zhao, Y. Deng, and X. He, "Interleaved converter with voltage multiplier cell for high step-up and high-efficiency conversion," *IEEE Transactions on Power Electronics*, vol. 25, no. 9, pp. 2397–2408, 2010.

[22] P. Kim, S. Lee, J. Park, and S. Choi, "High step-up interleaved boost converters using voltage multiplier cells," in *8th International Conference on Power Electronics - ECCE Asia*, 2011, pp. 2844–2851.

[23] M. Forouzesh, Y. P. Siwakoti, S. A. Gorji, F. Blaabjerg, and B. Lehman, "Step-up dc–dc converters: A comprehensive review of voltage-boosting techniques, topologies, and applications," *IEEE Transactions on Power Electronics*, vol. 32, no. 12, pp. 9143–9178, 2017.

[24] F. Zhang, F. Peng, and Z. Qian, "Study of the multilevel converters in dc-dc applications," in *2004 IEEE 35th Annual Power Electronics Specialists Conference (IEEE Cat. No.04CH37551)*, vol. 2, 2004, pp. 1702–1706 Vol.2.

[25] S. Kouro, M. Malinowski, K. Gopakumar, J. Pou, L. G. Franquelo, B. Wu, J. Rodriguez, M. A. Pérez, and J. I. Leon, "Recent advances and industrial applications

of multilevel converters," *IEEE Transactions on Industrial Electronics*, vol. 57, no. 8, pp. 2553–2580, 2010.

[26] W. Li, W. Li, Y. Deng, and X. He, "Single-stage single-phase high-step-up zvt boost converter for fuel-cell microgrid system," *IEEE Transactions on Power Electronics*, vol. 25, no. 12, pp. 3057–3065, 2010.

[27] Y. Murai, T. Watanabe, and H. Iwasaki, "Waveform distortion and correction circuit for pwm inverters with switching lag-times," *IEEE Transactions on Industry Applications*, vol. IA-23, no. 5, pp. 881–886, 1987.

[28] A. Munoz and T. Lipo, "On-line dead-time compensation technique for open-loop pwm-vsi drives," *IEEE Transactions on Power Electronics*, vol. 14, no. 4, pp. 683–689, 1999.

[29] H. Wang and F. Blaabjerg, "Reliability of capacitors for dc-link applications in power electronic converters—an overview," *IEEE Transactions on Industry Applications*, vol. 50, no. 5, pp. 3569–3578, 2014.

[30] M. Shen, A. Joseph, J. Wang, F. Peng, and D. Adams, "Comparison of traditional inverters and z-source inverter for fuel cell vehicles," in *Power Electronics in Transportation (IEEE Cat. No.04TH8756)*, 2004, pp. 125–132.

[31] F. Z. Peng, "Z-source inverter," *IEEE Transactions on Industry Applications*, vol. 39, no. 2, pp. 504–510, 2003.

[32] J. Anderson and F. Peng, "Four quasi-z-source inverters," in *2008 IEEE Power Electronics Specialists Conference*, 2008, pp. 2743–2749.

[33] M.-K. Nguyen, Q.-D. Phan, V.-N. Nguyen, Y.-C. Lim, and J.-K. Park, "Trans-z-source-based isolated dc-dc converters," in *2013 IEEE International Symposium on Industrial Electronics*, 2013, pp. 1–6.

[34] H. Shen, B. Zhang, D. Qiu, and L. Zhou, "A common grounded z-source dc–dc converter with high voltage gain," *IEEE Transactions on Industrial Electronics*, vol. 63, no. 5, pp. 2925–2935, 2016.

[35] P. C. Loh, F. Gao, and F. Blaabjerg, "Embedded ez-source inverters," *IEEE Transactions on Industry Applications*, vol. 46, no. 1, pp. 256–267, 2010.

[36] T. Takiguchi and H. Koizumi, "Quasi-z-source dc-dc converter with voltage-lift technique," in *IECON 2013 - 39th Annual Conference of the IEEE Industrial Electronics Society*, 2013, pp. 1191–1196.

[37] Y. P. Siwakoti, F. Blaabjerg, and P. C. Loh, "Quasi y-source boost dc-dc converter," in *2015 17th European Conference on Power Electronics and Applications (EPE'15 ECCE-Europe)*, 2015, pp. 1–10.

[38] Y. P. Siwakoti, P. C. Loh, F. Blaabjerg, S. J. Andreasen, and G. E. Town, "Y-source boost dc/dc converter for distributed generation," *IEEE Transactions on Industrial Electronics*, vol. 62, no. 2, pp. 1059–1069, 2015.

[39] M. M. Haji-Esmaeili, E. Babaei, and M. Sabahi, "High step-up quasi-z source dc–dc converter," *IEEE Transactions on Power Electronics*, vol. 33, no. 12, pp. 10 563–10 571, 2018.

[40] D. Sun, B. Ge, W. Liang, H. Abu-Rub, and F. Z. Peng, "An energy stored quasi-z-source cascade multilevel inverter-based photovoltaic power generation system," *IEEE Transactions on Industrial Electronics*, vol. 62, no. 9, pp. 5458–5467, 2015.

[41] G. Walker and P. Sernia, "Cascaded dc-dc converter connection of photovoltaic modules," *IEEE Transactions on Power Electronics*, vol. 19, no. 4, pp. 1130–1139, 2004.

[42] D. Vinnikov, I. Roasto, R. Strzelecki, and M. Adamowicz, "Step-up dc/dc converters with cascaded quasi-z-source network," *IEEE Transactions on Industrial Electronics*, vol. 59, no. 10, pp. 3727–3736, 2012.

[43] E. P. A. Raveendran and A. P. Ommen, "Quasi-z-source dc-dc converter with switched capacitor," *International Journal of Engineering Research and General Science*, vol. 3, no. 4, pp. 1132–1137, 2015.

[44] A. V. Ho, T.-W. Chun, and H.-G. Kim, "Extended boost active-switched-capacitor/switched-inductor quasi-z-source inverters," *IEEE Transactions on Power Electronics*, vol. 30, no. 10, pp. 5681–5690, 2015.

[45] Y. Wang, Q. Bian, X. Hu, Y. Guan, and D. Xu, "A high-performance impedance-source converter with switched inductor," *IEEE Transactions on Power Electronics*, vol. 34, no. 4, pp. 3384–3396, 2019.

[46] D. D.-C. Lu, D. Cheng, and Y.-S. Lee, "A single-switch continuous-conduction-mode boost converter with reduced reverse-recovery and switching losses," *IEEE Transactions on Industrial Electronics*, vol. 50, no. 4, pp. 767–776, 2003.

[47] V. P. Galigekere and M. K. Kazimierczuk, "Analysis of pwm z-source dc-dc converter in ccm for steady state," *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 59, no. 4, pp. 854–863, 2012.

[48] C. J. Gajanayake, L. F. Lin, G. H. Beng, S. P. Lam, and S. L. Kian, "boost z-source inverters," in *2009 IEEE Energy Conversion Congress and Exposition*, 2009, pp. 3845–3852.

[49] M. Veerachary and P. Kumar, "Analysis and design of sixth order quasi-z-source dc-dc boost converter," in *2019 IEEE International Conference on Sustainable Energy Technologies and Systems (ICSETS)*, 2019, pp. 347–352.

[50] R. Rahimi, S. Habibi, M. Ferdowsi, and P. Shamsi, "Z-source-based high step-up dc–dc converters for photovoltaic applications," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 10, no. 4, pp. 4783–4796, 2022.

[51] L. Yang, D. Qiu, B. Zhang, G. Zhang, and W. Xiao, "A modified z-source dc-dc converter," pp. 1–9, 2014.

[52] M.-K. Nguyen, Y.-C. Lim, and G.-B. Cho, "Switched-inductor quasi-z-source inverter," *IEEE Transactions on Power Electronics*, vol. 26, no. 11, pp. 3183–3191, 2011.

[53] H. Fathi and H. Madadi, "Enhanced-boost z-source inverters with switched z-impedance," *IEEE Transactions on Industrial Electronics*, vol. 63, no. 2, pp. 691–703, 2016.

[54] V. Jagan, J. Kotturu, and S. Das, "Enhanced-boost quasi-z-source inverters with two-switched impedance networks," *IEEE Transactions on Industrial Electronics*, vol. 64, no. 9, pp. 6885–6897, 2017.

[55] Y. Gu, Y. Chen, and B. Zhang, "Enhanced-boost quasi-z-source inverter with an active switched z-network," *IEEE Transactions on Industrial Electronics*, vol. 65, no. 10, pp. 8372–8381, 2018.

[56] M.-K. Nguyen, T.-D. Duong, Y.-C. Lim, and Y.-G. Kim, "Switched-capacitor quasi-switched boost inverters," *IEEE Transactions on Industrial Electronics*, vol. 65, no. 6, pp. 5105–5113, 2018.

[57] R. Majeed and A. H. Chughtai, "Multicell schemes for active-switched-capacitor and active-switched-capacitor/switched- inductor quasi-z-source inverters," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 8, no. 2, pp. 1739–1754, 2020.

[58] X. Zhu, B. Zhang, and D. Qiu, "Enhanced boost quasi-z-source inverters with active switched-inductor boostnetwork," *IET Power Electronics*, vol. 11, no. 11, pp. 1774–1787, 2018. [Online]. Available: https://ietresearch.onlinelibrary.wiley.com/doi/abs/10.1049/iet-pel.2017.0844

[59] M. Zhu, K. Yu, and F. L. Luo, "Switched inductor z-source inverter," *IEEE Transactions on Power Electronics*, vol. 25, no. 8, pp. 2150–2158, 2010.

[60] H. Shen, B. Zhang, and D. Qiu, "Hybrid z-source boost dc–dc converters," *IEEE Transactions on Industrial Electronics*, vol. 64, no. 1, pp. 310–319, 2017.

[61] V. A. K. Prabhala, P. Fajri, V. S. P. Gouribhatla, B. P. Baddipadiga, and M. Ferdowsi, "A dc–dc converter with high voltage gain and two input boost stages," *IEEE Transactions on Power Electronics*, vol. 31, no. 6, pp. 4206–4215, 2016.

[62] M. A. Salvador, J. M. de Andrade, T. B. Lazzarin, and R. F. Coelho, "Nonisolated high-step-up dc–dc converter derived from switched-inductors and switched-capacitors," *IEEE Transactions on Industrial Electronics*, vol. 67, no. 10, pp. 8506–8516, 2020.

[63] M. A. Salvador, T. B. Lazzarin, and R. F. Coelho, "High step-up dc–dc converter with active switched-inductor and passive switched-capacitor networks," *IEEE Transactions on Industrial Electronics*, vol. 65, no. 7, pp. 5644–5654, 2018.

[64] F. Z. P. J.C. Rosas-Caro, J. M. Ramirez and A. Valderrabano, "A dc-dc multilevel boost converter," *IET Power Electron.*, vol. 3, no. 1, pp. 129–137, 2010.

[65] M. Chen, K. Li, J. Hu, and A. Ioinovici, "Generation of a family of very high dc gain power electronics circuits based on switched-capacitor-inductor cells starting from a simple graph," *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 63, no. 12, pp. 2381–2392, 2016.

[66] T. Shanthi, S. U. Prabha, and K. Sundaramoorthy, "Non-isolated n-stage high step-up dc-dc converter for low voltage dc source integration," *IEEE Transactions on Energy Conversion*, vol. 36, no. 3, pp. 1625–1634, 2021.

[67] M. R. Banaei and H. A. F. Bonab, "A novel structure for single-switch nonisolated transformerless buck–boost dc–dc converter," *IEEE Transactions on Industrial Electronics*, vol. 64, no. 1, pp. 198–205, 2017.

[68] A. M. S. S. Andrade, T. M. K. Faistel, R. A. Guisso, and A. Toebe, "Hybrid high voltage gain transformerless dc–dc converter," *IEEE Transactions on Industrial Electronics*, vol. 69, no. 3, pp. 2470–2479, 2022.

[69] L. Huber, B. T. Irving, and M. M. Jovanovic, "Effect of valley switching and switching-frequency limitation on line-current distortions of dcm/ccm boundary boost pfc converters," *IEEE Transactions on Power Electronics*, vol. 24, no. 2, pp. 339–347, 2009.

[70] M. S. Bhaskar, R. Alammari, M. Meraj, S. Padmanaban, and A. Iqbal, "A new triple-switch-triple-mode high step-up converter with wide range of duty cycle for dc microgrid applications," *IEEE Transactions on Industry Applications*, vol. 55, no. 6, pp. 7425–7441, 2019.

[71] M. Lakshmi and S. Hemamalini, "Nonisolated high gain dc–dc converter for dc microgrids," *IEEE Transactions on Industrial Electronics*, vol. 65, no. 2, pp. 1205–1212, 2018.

[72] M. Sagar Bhaskar, M. Meraj, A. Iqbal, S. Padmanaban, P. Kiran Maroti, and R. Alammari, "High gain transformer-less double-duty-triple-mode dc/dc converter for dc microgrid," *IEEE Access*, vol. 7, pp. 36 353–36 370, 2019.

[73] B. Faridpak, M. Bayat, M. Nasiri, R. Samanbakhsh, and M. Farrokhifar, "Improved hybrid switched inductor/switched capacitor dc–dc converters," *IEEE Transactions on Power Electronics*, vol. 36, no. 3, pp. 3053–3062, 2021.

[74] P. K. Maroti, S. Padmanaban, M. S. Bhaskar, M. Meraj, A. Iqbal, and R. Al-Ammari, "High gain three-state switching hybrid boost converter for dc microgrid applications," *IET Power Electronics*, vol. 12, no. 14, pp. 3656–3667, 2019.

[75] V. Marzang, S. H. Hosseini, N. Rostami, P. Alavi, P. Mohseni, and S. M. Hashemzadeh, "A high step-up nonisolated dc–dc converter with flexible voltage gain," *IEEE Transactions on Power Electronics*, vol. 35, no. 10, pp. 10 489–10 500, 2020.

[76] P. K. Maroti, S. Padmanaban, M. S. Bhaskar, M. Meraj, A. Iqbal, and R. Al-Ammari, "High gain three-state switching hybrid boost converter for dc microgrid applications," *IET Power Electronics*, vol. 12, no. 14, pp. 3656–3667, 2019.

Appendix A

List of Publications

A.1 Journal papers

- **Aakash Singh**, A. Kumar, X. Pan, Santosh K. Singh, X. Xiong and N. K. S. Naidu, "Quasi-Impedance-Source-Network-Based Nonisolated High-Step-Up DC–DC Converter," *IEEE Transactions on Industry Applications*, vol. 57, no. 6, pp. 6405-6416, Nov.-Dec. 2021,.

- **Aakash Singh**, V. Siva, A. Kumar and S. K. Singh, "Analysis and Design of Switched LC Converter With Reduced Voltage Stress for Photovoltaic Applications," *IEEE Transactions on Industry Applications*, vol. 59, no. 5, pp. 6468-6479, Sept.-Oct. 2023, doi: 10.1109/TIA.2023.3275929.

- **Aakash Singh**, Santosh K. Singh. "Flexible High Voltage gain Converter based on Switched LC cells with Common Ground for DC Microgrid" *IEEE Transactions on Power Electronics.*(Under resubmission).

- **Aakash Singh**, Santosh K Singh and A.Kumar "Analysis and Design of Interleaved High Gain Converter with reduced input current ripple" *IEEE Transactions on Industry Applications.*(In preparation).

A.2 Conference papers

- **Aakash Singh**, A. Kumar, S. K. Singh and N. K. Swami Naidu, "Non-Isolated Dual Switch Based High Gain DC-DC Converter," 2019 IEEE Transportation

Electrification Conference (ITEC-India), Bengaluru, India, 2019, pp. 1-5.

- **Aakash Singh**, V. Siva, S. K. Singh and A. Kumar, "Active-Network with Passive Capacitor based High Gain DC-DC Converter," 2022 IEEE International Conference on Power Electronics, Smart Grid, and Renewable Energy (PESGRE), Trivandrum, India, 2022.

- **Aakash Singh**, V. Siva, S. K. Singh and A. Kumar, "Quasi-Z-Source based Step-up Converter for Fuel Cell Vehicle," 2022 IEEE 2nd International Conference on Sustainable Energy and Future Electric Transportation (SeFeT), Hyderabad, India, 2022, pp. 1-6.

- **Aakash Singh**, V. Siva, A. Kumar and S. K. Singh, "High gain DC-DC Converter by using Active Network based Voltage Multiplier Cell," 2022 IEEE 2nd International Conference on Sustainable Energy and Future Electric Transportation (SeFeT), Hyderabad, India, 2022, pp. 1-6.

- **Aakash Singh**, V. Siva and S. K. Singh, "Quadratic High Gain Converter Based on Active Switched Inductor and Capacitor-Diode Network for DC Microgrid," IECON 2023- 49th Annual Conference of the IEEE Industrial Electronics Society, Singapore, Singapore, 2023, pp. 1-6, doi: 10.1109/IECON51785.2023.10311757.

- **Aakash Singh**, V. Siva, A. Kumar and S. K. Singh, "Active Switched LC based non-isolated Quadratic High gain Converter for renewable Integration," 2023 IEEE International Conference on Power Electronics, Smart Grid, and Renewable Energy (PESGRE), Trivandrum, India, 2023, pp. 1-6, doi: 10.1109/PESGRE58662.2023.10404911.

- V. Siva, **Aakash Singh**, M. Raghuram, A. Kumar and S. K. Singh, "Enhanced Voltage Gain of USMC by Modified Quasi Z source Impedance Network," 2022 IEEE Industry Applications Society Annual Meeting (IAS), Detroit, MI, USA, 2022, pp. 1-6.

- V. Siva, **Aakash Singh**, S. K. Singh and M. Raghuram, "Ultra Sparse Matrix Converter with Impedance Network to Enhance the Voltage Gain," 2022 IEEE

2nd International Conference on Sustainable Energy and Future Electric Transportation (SeFeT), Hyderabad, India, 2022, pp. 1-5.

- V. Siva, **Aakash Singh**, S. K. Singh and M. Raghuram, "Improved Common Mode Voltage and Modulation Index range in Ultra Sparse Matrix converters by adding active zero state switch network," 2022 IEEE 2nd International Conference on Sustainable Energy and Future Electric Transportation (SeFeT), Hyderabad, India, 2022, pp. 1-5.

- A. Kumar, M. Reza, **Aakash Singh**, S. K. Singh and R. K. Behera, "A Wide Voltage Gain Active Switched Inductor and Passive Switched Capacitor DC-DC Converter with Very Low Voltage Stress," 2023 IEEE 3rd International Conference on Smart Technologies for Power, Energy and Control (STPEC), Bhubaneswar, India, 2023, pp. 1-6, doi: 10.1109/STPEC59253.2023.10430758.