

# ALLAMSETTY HEMACHANDER

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## Career Objective :

To develop research skills and serve a professionally managed organization which will be able to exploit my resources to the maximum extent in achieving the goals of the organization and treat me as an asset of the organization while also contributing to my career and self-development.

## Academic background:

Qualification	Discipline / Specialization	School / College	Board / University	Year of Passing	Aggregate / CGPA
Ph.D.	Electrical Engineering	National Institute of Technology Raipur	National Institute of Technology Raipur	2020	-
M.E	Power Electronic Drives & Control	Andhra University College of Engineering (A)	Andhra University College of Engineering (A)	2012	8.1(CGPA)
B. Tech	Electrical & Electronics Engineering	Raghu Engineering College, Visakhapatnam	Jawaharlal Nehru Technological University, Kakinada	2010	74.39%

## Academic Projects:

**Ph.D.:** Investigation and Development of Multi-Input Converter for Solar Photovoltaic Applications.

**Work Description:** The work involves providing a solution for partial shading in PV systems using Multiple Input Converter(MIC). To overcome the limitations of the existing solutions, a simple, reliable, cost-effective and efficient solution using MIC based approach has been proposed. The proposed approach has been validated in MATLAB/Simulink and a laboratory prototype developed. A 300W laboratory prototype has been developed on PCB using Proteus. The real time validation on the prototype developed has been performed using Solar emulator, dSPACE 1103 and Microlab Box digital controller. Further, the proposed system has been validated on OPAL-RT, OP5600 simulator-based HIL test bench.

**M.E:** Voltage Source Series Resonant Inverters with Self-Starting Capability for Induction Heating and Melting Applications.

### Technical Skills:

Applications	: MS- Office, Visio
Software 's	: MATLAB Simulink, PSPICE, PSIM, Proteus
Digital Platforms	: dSPACE (1103, Micro Lab box), DSP (2812, 28335), OPAL-RT OP5600
Modules	: ecosense 1.4kW PV Emulator, BK Precision 1.2kW electronic load

### Research Experience:

- Full time research experience at **National Institute of Technology (NIT) Raipur**, from August 2016 to August 2019.
- Experience in designing and development of power electronic converters for solar applications.
- Hands-on-experience in using dSPACE 1103, dSPACE Microlab box digital controllers.
- Hands-on-experience in HIL testing using OPAL RT, OP 5600.
- Worked on Solar Emulator, Electronic load and Li ion phosphate battery.
- Designed PCB for various power converters using Proteus.

### Journal Publications:

1. **A. Hema Chander**, L. K. Sahu and S. Ghosh, "Stand-alone multiple input photovoltaic inverter for maximum power extraction and voltage regulation under mismatched atmospheric conditions," in IET Renewable Power Generation, vol. 14, no. 9, pp. 1584-1595, 6 7 2020, doi: 10.1049/iet-rpg.2018.6081.
2. **A. Hema Chander**, L. Kumar Sahu, S. Ghosh and K. K. Gupta, "Comparative analysis on selection and synthesis of multiple input converters: a review," in IET Power Electronics, vol. 13, no. 4, pp. 611-626, 18 3 2020, doi: 10.1049/iet-pel.2019.0732.
3. L. K. Sahu, **H. C. Allamsetty** and S. Ghosh, "Performance analysis of multiple input converter for standalone photovoltaic system," in IET Power Electronics, vol. 12, no. 5, pp. 1295-1306, 1 5 2019, doi: 10.1049/iet-pel.2018.6148.
4. **A. Hema Chander** and L. Kumar, "MIC for reliable and efficient harvesting of solar energy," in IET Power Electronics, vol. 12, no. 2, pp. 267-275, 20 2 2019, doi: 10.1049/iet-pel.2018.5079.

### Conference Publications:

1. M. K. Barwar, L. K. Sahu, P. Bhatnagar, K. K. Gupta and **A. H. Chander**, "A Decoupled Low-Frequency Ripple Cancellation Method for High-Power LED Driver circuits," IECON 2020 The 46th Annual Conference of the IEEE Industrial Electronics Society, Singapore, Singapore, 2020, pp. 3597-3602, doi: 10.1109/IECON43393.2020.9255287.

2. M. Chinnari, T.Mounika, K.Swetha, A.Bharathi, **Allamsetty Hema Chander**, "Implementation of Hysteresis Voltage Control for Different Inverter Topologies", 2020 IEEE India Council International Subsections' Conference Oct. 3-4 2020, Visakhapatnam, India (Presented).
3. **Allamsetty Hema Chander**, L. K. Sahu and M. Jalhotra, "Reliability analysis of Multiple Input Converter," *2020 First International Conference on Power, Control and Computing Technologies (ICPC2T)*, Raipur, India, 2020, pp. 235-239.
4. **Allamsetty Hema Chander**, L. K. Sahu and P. T. Bankupalli, "Review on General Architecture and Selection of Multiple Input Converters," *2020 First International Conference on Power, Control and Computing Technologies (ICPC2T)*, Raipur, India, 2020, pp. 240-245.
5. M. K. Barwar, L. K. Sahu, P. Bhatnagar and **A. H. Chander**, "Topological Overview of Single-Inductor based Multiple-Output Channel LED Driver," 2020 First International Conference on Power, Control and Computing Technologies (ICPC2T), Raipur, India, 2020, pp. 122-127.
6. **Allamsetty Hema Chander**, L. Kumar, P. T. Bankupalli and M. Jalhotra, "A Transformerless Photovoltaic Inverter with Dedicated MPPT for Grid Application," *2019 International Conference on Computing, Power and Communication Technologies (GUCON)*, NCR New Delhi, India, 2019, pp. 481-486.
7. **Allamsetty Hema Chander**, L. Kumar Sahu and M. Jalhotra, "Dual Input Converter Fed Transformerless Multilevel Inverter for Standalone PV Application," *2019 International Conference on Computing, Power and Communication Technologies (GUCON)*, NCR New Delhi, India, 2019, pp. 487-491.
8. **Allamsetty Hema Chander** and L. Kumar, "Design of a Synchronous Reference Frame Controller for Single Phase Standalone Photovoltaic Inverter," *2017 14th IEEE India Council International Conference (INDICON)*, Roorkee, 2017, pp. 1-6.
9. **Allamsetty Hema Chander** and L. Kumar, "Multiple Input Converter for Standalone Photovoltaic Applications," *2017 14th IEEE India Council International Conference (INDICON)*, Roorkee, 2017.
10. M. Jalhotra, S. P. Gautam, L. Kumar, S. Gupta and **Allamsetty Hema Chander**, "Fault Tolerance and Energy Sharing Analysis of a Single Phase Multilevel Inverter Topology," *IECON 2018 - 44th Annual Conference of the IEEE Industrial Electronics Society*, Washington, DC, 2018, pp. 1209-1213.
11. Manik, S. P. Gautam, L. Kumar, S. Gupta and **Allamsetty Hema Chander**, "Reliability Analysis of a Novel Fault Tolerant Multilevel Inverter Topology," *IECON 2018 - 44th Annual Conference of the IEEE Industrial Electronics Society*, Washington, DC, 2018, pp. 1460-1465.
12. M. Jalhotra, **Allamsetty Hema Chander** and L. Kumar, "A single phase fault tolerant multi-level Inverter topology," *2017 2nd IEEE International Conference on Recent Trends in Electronics, Information & Communication Technology (RTEICT)*, Bangalore, 2017, pp. 1022-1026.

13. **A. Hema Chander** and T.R.Jyothsna “Self-started Voltage source series resonant converter for High power Induction heating and melting applications with IGBT” in “National Conference on Simulation, Modeling and Optimization (NCSMO-2012)” held at VELS University, Chennai on 2<sup>nd</sup> November 2012.

#### **Book Chapters :**

1. Daryabi S., **Hema Chander A.**, Madhuri B.G., Pramadha Rani V. (2021) Reliability Assessment of a Hybrid PV/Battery Converter. In: Chowdary P., Chakravarthy V., Anguera J., Satapathy S., Bhateja V. (eds) Microelectronics, Electromagnetics and Telecommunications. Lecture Notes in Electrical Engineering, vol 655. Springer, Singapore. [https://doi.org/10.1007/978-981-15-3828-5\\_56](https://doi.org/10.1007/978-981-15-3828-5_56).
2. Madisa V. G. Varaprasad, B. Arundhati, **A. Hema Chander** and B. Phani Teja, “Design and Implementation of a Modified H-Bridge Multilevel Inverter with Reduced Component Count”, in Advances in Intelligent Systems and Computing, Springer Publisher. (Accepted)

#### **Work Experience:**

- Working as Assistant Professor in the Department of Electrical and Electronics Engineering at **Gayatri Vidya Parishad College of Engineering for Women**, Visakhapatnam since August 2019.
- Worked as Assistant Professor in the Department of Electrical and Electronics Engineering at **Gayatri Vidya Parishad College of Engineering for Women**, Visakhapatnam from June 2013 to August 2016.

#### **Subjects and Labs Handled:**

- Network Analysis, Power Electronics, Power Semi-Conductor Drives, High Voltage Engineering, HVDC Transmission, Digital Control Systems
- Network Analysis Lab, Electrical Machines Lab, Control Systems Lab, Power Electronics Lab.

#### **Guest Lectures Delivered:**

1. Delivered a lecture on Solar Fundamentals using MATLAB at Raghu Engineering College on 29-31 August 2019.
2. Delivered a guest lecture on “Multiport Converters” in 2<sup>nd</sup> National Workshop on “Recent Trends in Power Electronic Converters and Real-Time Control” from 9th– 13th December 2019 at NIT Raipur.
3. Delivered a guest lecture on “Solar Power Plant” in a Two-day workshop on SOLAR MPPT Techniques at Gayatri Vidya Parishad College of Engineering for Women on 12-13 March, 2020.
4. Delivered a lecture on “Role of Power Electronics in Sustainable Energy Systems Design for Remote Villages in India” in the TEQIP-3 Sponsored Online Short Term Training Program on "Sustainable Energy Systems Design for Remote Villages in India", organized by Department of Electrical Engineering, NIT Raipur from 14-18 September, 2020.

**Areas of Interest:**

- ❖ DC-DC converters and their control
- ❖ Fast Charging Techniques of Electric Vehicle Battery
- ❖ Multi-Level Inverters and their control
- ❖ Renewable Energy applications
- ❖ Battery Management Systems

**Extra-Curricular Activities:**

- Awarded the Best Paper Award in “National Conference on Simulation, Modeling and Optimization (NCSMO-2012)” for the paper titled “Self-started Voltage source series resonant converter for High power Induction heating and melting applications with IGBT” held at VELS University, Chennai on 2<sup>nd</sup> November 2012.
- Organizer of EUPHORIA-2k9, a National level technical symposium at Raghu Engineering College.
- Awarded first in model making for making a model illustrating “Principle of Electro-magnetic Induction”, held on 15<sup>th</sup> September 2009 at Raghu Engineering College.
- Awarded second in Paper presentation on “Multi-Terminal DC Voltage” at QUARRK-2k9, a national level technical symposium at Vignan Engineering College.

**Member Ship in Professional Bodies:**

- Associate Member of the Institute of Engineers (India)
- Member IEEE

**Reviewer:**

- Active Reviewer of journal of IET Power Electronics
- Active Reviewer of journal of IET Renewable Power Generation

**Personal Profile:**

Father's Name : A Hima Kumar  
Date of Birth : 01-Aug-1989  
Nationality : Indian  
Languages Proficiency : English, Hindi, and Telugu  
Postal Address : Plot No.-70, Visalakshi Nagar, Visakhapatnam-530043

**Declaration:**

I hereby declare that the information furnished above is true to the best of my knowledge.

Place: VISAKHAPATNAM

(A HEMA CHANDER)