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Technical Collection

Researcher Profile

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Spring 10-1-2022

**Global Maximum Power Point Tracking Algorithms, The research articles propose novel algorithms 1. To track global peak under fast changing partial shading conditions using current control approach. 2. To track global peak using voltage and current perturbation-based technique.**

Raghavendra Rao P

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# Dr. Raghavendra Rao P

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## SUMMARY

To build a long-term career in teaching with opportunities for career growth and to keep up with the cutting edge of the teaching technologies.

## ACADEMIC DETAILS

2019-2022	<b>Ph. D</b> Electrical and Electronics Engineering National Institute of Technology, Karnataka, India	<b>Area of Research:</b> Application of Power Electronics in Renewable Energy Systems <b>CGPA:</b> 8.85
2013-2015	<b>M.Tech</b> Electrical and Electronics Engineering NMAMIT, Nitte.	<b>Area:</b> Microelectronics and Control Systems <b>Percentage:</b> 75.71
2008-2012	<b>B.E</b> Electrical and Electronics Engineering NMAMIT, Nitte.	<b>CGPA:</b> 9.10

## PROFESSIONAL EXPERIENCE

### NATIONAL INSTITUTE OF TECHNOLOGY, KARNATAKA

December 26, 2019 to Jan, 10, 2022 (2.1 years)

**Research Scholar** (Electrical and Electronics Engineering) under the guidance of Prof. B. Venkatesaperumal (Professor, Dept. of EEE) and Dr. Vignesh Kumar V (Asst. Professor, Dept. of EEE)

**Research Topic:** Investigation of Control Algorithms for PV Systems under Partial Shading Conditions and their effect on the efficiency of DC-DC converter.

### SHRI MADHWA VADIRAJA INSTITUTE OF TECHNOLOGY AND MANAGEMENT

- **Associate Professor (Electronics and Communication Engineering)**  
March 23, 2022 Till Present
- **Assistant Professor (Senior) (Electronics and Communication Engineering)**  
Jan. 10, 2022 till March 22, 2022.
- **Assistant Professor (Electronics and Communication Engineering)**  
July 13, 2015 to December 25, 2019 (4 years, 5 months)
  - **Theory Subjects Handled:**

- Basic Electrical Engineering, Control Systems, Verilog-HDL, Digital Electronics, Microelectronics.
- **Labs Handled:**
  - Digital Electronics Lab, Analog Electronics Lab, Microcontroller Lab, Basic Electrical Engineering Lab, HDL Lab, VLSI Lab.
- Worked as **NAAC Coordinator** that helped the Institution to get accredited with 'A' grade during the year 2018-2019.
- Worked as **NBA Coordinator** that helped the Department of ECE to get accredited for the next three years till 2023-2024.
- **Soft skill Trainer** on the Topics, Group Discussion and Interview Skills.
- Worked as Placement Coordinator of Electronics and Communication Department.

## AWARDS

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**Secured Best paper award** under the Stream Electrical, Electronics and Communication for the technical paper entitled " Perturb and Observe for Maximum Power Point Tracking" at the **International Conference on Emerging Trends in Engineering organized by NMAMIT**, Nitte during May 8 and 9, 2015.

## TECHNICAL SKILLS

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### Programming Languages

MATLAB/Simulink, KiCAD, Keil, Multisim, VHDL, Verilog and Latex, C, C++.

### Hardware

8051 Microcontroller, DS1202 Microlabbox, Chroma PV Simulator.

## PUBLICATIONS

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### PATENT

Vigneshkumar V, B. Venkatesaperumal, and **Raghavendra Rao P**, "A Method and system for detecting global peak under non-uniform insolation conditions", filed on April 09, 2021. **Patent Application Number: 202141016770**

### JOURNAL

**Raghavendra Rao P**, Vignesh Kumar V, B. Venkatesaperumal and Vanjari Venkata Ramana, "Modified Current Control for tracking global peak under fast changing partial shading conditions", in *IEEE Transactions on Energy Conversion*. (2021).

**Raghavendra Rao P**, Vignesh Kumar V, K. K. Prabhakaran and B. Venkatesaperumal, "A Novel Algorithm based on Voltage and Current Perturbation to track global peak under partial shading conditions", *IEEE Transactions on Energy Conversion*. (2022)

**Raghavendra Rao P** and K. Vasudeva Shettigar, "Simulation of Advanced Perturb and Observe MPPT for a Standalone PV System" in the *International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering* (Dec. 2015).

## CONFERENCES

**Raghavendra Rao P**, Vignesh Kumar Vethanayagam, and B. Venkatesaperumal, “Loss Analysis of Conventional and Three Level Boost DC-DC Converters employed for MPPT in PV Systems”, at the **IEEE Delhi Section International Conference on Electrical, Electronics and Computer Engineering**, organized by NSUT, Delhi from Feb. 11, 2022 to Feb. 13, 2022.

Joyline, Phebe and **Raghavendra Rao P**, “Automatic Rice Dispensing in Ration Office using RFID and GSM module”, at the **National Conference on Emerging Trends in Science and Engineering**, held at SMVITM, Bantakal, Udupi on April 27 and 28, 2018.

Rushali Naik, Nagraj Rao and **Raghavendra Rao P**, “Review of Speed control of DC motor using various Controllers”, at the **International Conference on Innovative ideas in Engineering and Technology**, held at RYMEC, Ballari on 12<sup>th</sup> and 13<sup>th</sup> April, 2018.

**Raghavendra Rao P** and K. Vasudeva Shettigar, “Simulation and Hardware Implementation of Incremental Conductance MPPT for a Standalone PV system” at the **National Conference on Research in Science, Engineering & Management**, organized by PESITM, Shivamogga on May 2, 2015. ISBN: 978-81-926416-2-1.

**Raghavendra Rao P**, Chaitra and Praveen, “Design and Development of a Terrain Specific Unmanned Ground Vehicle Incorporated with Obstacle Detection” at the **3<sup>rd</sup> International Conference on Science and Innovative Engineering organized by the Organization of Science of Innovative Engineering and Technology (OSIET)**, Chennai. ISBN: 978-81-904760-5-8.

## PROFESSIONAL PROFILE

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A **YouTube channel** with a motive to educate young students about analog and digital circuit design. The circuits are simulated using NI- Multisim. Using the design, simple projects are also simulated using NI-Multisim and Keil software.

Channel Link: <https://www.youtube.com/raghavendraraop>.

Life Member of **ISTE**

### **Reviewer**

**IEEE Transactions**

**American Journal of Electrical and Electronics Engineering**

## WORKSHOPS ATTENDED

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Attended an 8-day Faculty development program on “Application of Power Electronics in Electric Vehicles and Energy Storage”, jointly organized by the Department of Electrical Engineering, NIT, Warangal and NIT, Karnataka in association with ICT Academy, NIT, Warangal from Feb. 14 to Feb. 22, 2022.

Attended a 6-day Faculty development program on “Design, Analyses and Hardware Implementation of Switched Mode Power Converters” organized by the Dept. of EEE, NMAMIT, Nitte from 23<sup>rd</sup> to 28<sup>th</sup> July, 2018.

Attended a 1-day FDP on “New model Curriculum for first year B.E/B.Tech- CBCS detailed syllabus (2018-19) as per OBE format including CO and Bloom’s taxonomy” under Department of Electrical Board at SCEM, Mangalore organized by VTU, Belagavi on 19<sup>th</sup> May 2018.

Attended a 1-day FDP on “L.E.A.D- Leadership Empowerment and Development” organized by ISTE chapter of SMVITM in association with GHATD, Mumbai on 24<sup>th</sup> Jan. 2018.

Participated in a five-day FDP on “Research Methodology and Enhancing Teaching Methodology” at SMVITM, Bantakal from 11<sup>th</sup> to 15<sup>th</sup> December 2017.

Attended a three-day FDP on “Programmable Logic Controllers and SCADA” at St. Joseph Engineering College organized by the Department of Electrical and Electronics Engineering from 9<sup>th</sup> to 11<sup>th</sup> January 2017.

Attended a 3-day workshop on “Recent Trends in VLSI and Embedded System Design using Xilinx Zynq-7000 & Mentor Graphics EDA Tools” at SMVITM, Bantakal organized by Electronics and Communication Department in association with CoreEL Technologies from 11<sup>th</sup> to 13<sup>th</sup> July 2016.

Attended a Two-Day FDP on “Applications of Statistical and Neural Network Techniques” in Engineering jointly organized by the Department of Mechanical Engineering and ISTE Faculty Chapter from 6<sup>th</sup> to 7<sup>th</sup> June 2016 at SMVITM Bantakal.

Attended a one-day workshop on “Fundamentals of Analog IC Design” by Prof. Dr. P R Mukund of Rochester Institute of Technology, USA organized by the Department of Electronics and Communication on 17<sup>th</sup> June 2015 at SMVITM, Bantakal.

Attended a Three-Day short course on “Analog Electronic Design” by Prof. Dr. P R Mukund of Rochester Institute of Technology, USA organized by the Department of Electronics and Communication from 8<sup>th</sup> to 10<sup>th</sup> January 2016 at SMVITM, Bantakal.

Attended a Two-day National Level Workshop on “Recent Advances in Optoelectronic Materials and Devices” organized by the Department of Physics, NMAMIT, Nitte from 30<sup>th</sup> to 31<sup>st</sup> July, 2014.

## PROJECT DETAILS

Title of the Project	Objective	Year
Advanced Perturb and Observe for maximum power point tracking	To extract maximum power from the PV panel thus charging a battery of 24V, 7.2Ah Lead Acid rechargeable battery	2014-2015
Robo-Terrain	To have an un-manned locomotive incorporated with obstacle detection which is able to move through a given area by halting at predefined locations	2011-2012
Integrated DAC / ADC Board	To interface ADC, DAC, and 8051 Microcontroller, for its precise working. The interfacing of 3 major components into a single unit minimizes the size of the electronic circuit board in various applications in factories and research institutes.	2010-2011
Simple Soil Moisture Controller	To provide unmanned irrigation by controlling the moisture content of the soil	2010-2011

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using simple logic gates, transistor  
and relay coil.

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## REFERENCES

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### **Prof. B. Venkatesaperumal**

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Dept. of Electrical and Electronics  
National Institute of Technology, Karnataka, Surathkal  
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### **Dr. Vignesh Kumar Vethanayagam**

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### **Dr. Asha C S**

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### **Dr. Suresh Y**

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## DECLARATION

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I hereby declare that the above information is true to the best of my knowledge and I bear the responsibility for the correctness of the above-mentioned particulars.

Date:

[Raghavendra Rao P]