**Dr. KUNISETTI V PRAVEEN KUMAR**

kvpraveenkumar15@gmail.com, kvpraveenkumar@eed.svnit.ac.in

|  |  |
| --- | --- |
| **PRESENT ADDRESS**K. V. Praveen Kumar, Assistant Professor,Department of Electrical Engineering,Sardar Vallabhbhai National Institute of Technology, Surat,Gujarat.  | **PERMANENT ADDRESS**20-1-4, ChowthraNear RamalayamSangadigunta, Guntur522003 |

**EXPERIENCE**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of the Institution** | **Designation** | **Date of Joining** | **Date of Relieving** |
| Gayatri Vidya Parishad College of Engineering, Visakhapatnam, Andhra Pradesh | Assistant Professor | 10/11/2018 | 05/09/2019 |
| Sardar Vallabhbhai National Institute of Technology, Surat | Assistant Professor | 30/09/2019 | ---- |

**EDUCATION**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name of the Institution** | **Years Attended** | **Qualification Obtained** | **Class of Honor** | **Percentage** | **Course of Study** |
| **From** | **To** |
| **National Institute of Technology Warangal** | 17/07/2015 | 18/04/2019 | PhD | -NA- | -NA- | Power Electronics and Drive |
| KITS College Guntur, Affiliated to JNTU Kakinada | 2012 | 2014 | M.Tech | **First Class with Distinction** | 84.2 % | Power Electronics |
| SMCE Guntur, Affiliated to JNTU Kakinada | 2007 | 2011 | B.Tech | **First Class with Distinction** | 76.2 % | Electrical and Electronics Engineering |
| Board of Intermediate Education, AP | 2005 | 2007 | Intermediate (10+2) | **First Class with Distinction** | 76.2 % | Maths, Physics, Chemistry |
| Board of Secondary Education, AP | 2004 | 2005 | SSC (10th) | **First Class with Distinction** | 83 % |  |

**RELEVANT COURSEWORK DURING Ph.D**

Electric Drives

Advanced Power Electronics

Electrical Machine Modeling and Analysis

**ACADEMIC PROJECTS**

**Research Interests**

Multi-level Inverters, Open End Winding Induction Motor Drives, Direct Torque Control, Predictive Torque control, Predictive Current Control

**Doctor of Philosophy**

**Title:** Investigation of Direct Torque Control and Predictive Torque Control Strategies to an Open-end Winding Induction Motor Drive.

The doctoral thesis introduces effective voltage switching state algorithms for a direct torque controlled OEWIM drive to reduce torque and flux ripples with three and four-level inversion schemes. The switching state algorithms are implemented by considering operating speed of OEWIM drive. The proposed algorithms do not increase complexity. The developed DTC strategies maintain lesser ripple in torque, flux and less CMV. The limitation of classical PTC is variable switching frequency. In this thesis, an attempt is made to reduce switching frequency, torque and flux ripples by using multi-level inverter fed OEWIM configuration. This thesis describes the implementation of predictive torque controlled OEWIM with four-level inversion. To simplify the tuning of weighting factors, in this thesis, normalized weighted sum model is introduced to optimize the cost function. Another PTC strategy introduced to an OEWIM drive, to eliminate weighting factors. This uses two cost functions, one cost function is to reduce the flux ripple and the other cost function is to reduce the torque ripple.

**Master of Technology**

**Title:** Meticulous analysis of Induction motor drive fed with five-level cascaded H-Bridge inverter using Space Vector Modulation.

Space Vector Modulation for multi-level inverter fed induction motor was implemented. The SVM scheme is used to generate the inverter leg switching times, from the sampled reference phase voltage amplitudes and centers the switching times for the middle vectors, in a sampling interval, as in the case of conventional space vector modulation (SVM). The SVM scheme can also work in the over-modulation range, using only the sampled amplitudes of reference phase voltages. This SVM signal generation scheme can be used for any multilevel inverter configuration. Five-level inverter configuration, with an induction motor drive, is used to verify the SVM generation scheme with SIMULINK. The algorithm is developed using SIMULINK blocks in MATLAB.

**Bachelor of Technology**

**Title**: Enhancement of voltage quality in isolated power systems.

The use of series compensators (SC’s) in improving voltage quality of isolated power systems is considered. The roles of the compensators are to mitigate the effects of momentary voltage sags/swells, and to control the level of harmonic distortions in the networks. A control strategy for the SC is developed to regulate power flow. This is achieved through phase adjustment of load terminal voltage. It leads to an increase in the ride through capability of loads to the voltage sags/swells. Validity of the technique is illustrated through simulation.

**Mini Projects**

* Super Conductor Magnetic Energy Storage
* Speed Control of DC Motor using H-Bridge blocks
* Induction Motor speed control
* Field Oriented Control of induction motor
* Fuzzy coordination of FACTS Controllers for damping power systems

**DETAILS OF ARTICLES PUBLISHED IN JOURNALS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Author(s)** | **Title of Article** | **Name of Journal** | **Vol. No. Year and Page Number** | **Impact Factor & Citations** **if any** |
| **Kunisetti V Praveen Kumar** & Vinay Kumar T | Improvised Predictive Torque Control Strategy for an Open End Winding Induction Motor Drive fed with Four-Level Inversion using Normalized Weighted Sum Model | **IET** Power Electronics | Vol. 11, Issue 5,   pp. 808- 816, 2018 | 2.61, 05 |
| **Kunisetti V Praveen Kumar** & Vinay Kumar T | Predictive torque control of open-end winding induction motor drive fed with multilevel inversion using two two-level inverters | **IET** Electric Power Applications | Vol. 12, Issue 1,    pp. 54 - 62, 2018 | 2.306, 05 |
| **Kunisetti V Praveen Kumar** & Vinay Kumar T | An effective four-level voltage switching state algorithm for direct torque controlled open end winding induction motor drive by using two two-level inverters | Electric Power Components  and systems**, Taylor & Francis** | Vol. 45, Issue 19, pp. 2175-2187, 2017 | 1.15, 02 |
| **Kunisetti V Praveen Kumar**,Ravi Eswar K M & Vinay Kumar T | Hardware implementation of Predictive Torque Controlled Open-end winding induction motor drive with self-tuning algorithm | Cogent Engineering, **Taylor & Francis** | Vol. 4, Issue 1, 2017 | ESCI, 01 |
| **Kunisetti V Praveen Kumar**, Vinay Kumar T & S. Srinivasa rao | Analysis, design and implementation of direct torque controlled induction motor drive based on slip angle | International Journal of Modeling and Simulation, **Taylor & Francis** | Vol. 37, Issue 4, pp. 208-219, 2017 | SCOPUS, EBSCO, ESCI Indexed |
| **Kunisetti V Praveen Kumar** & Vinay Kumar T | An Enhanced Three-Level Voltage Switching State Scheme for Direct Torque Controlled Open End Winding Induction Motor | Journal of The Institution of Engineers (India): Series B, **Springer** | Vol. 99, Issue 3, pp. 235-243, 2018 | National Journal, Scopus, EBSCO Indexed, 01 |
| Ravi Eswar K M, **Kunisetti V Praveen Kumar** & Vinay Kumar T | Enhanced Predictive Torque Control with Auto-Tuning Feature for Induction Motor Drive | Electric Power Components  and systems**, Taylor & Francis** | Vol. 46, Issue 7, pp.825 - 836, 2018 | 1.15 |
| Ravi Eswar K M, **Kunisetti V Praveen Kumar** & Vinay Kumar T | A Simplified Predictive Torque Control Scheme for Open End Winding Induction Motor Drive | **IEEE**Journal of Emerging and Selected Topics in Power Electronics | Accepted for publication, 2019 | 5.177, 02 |
| Ravi Eswar K M, **Kunisetti V Praveen Kumar** & Vinay Kumar T | Enhanced Predictive Torque Control for Open End Winding Induction Motor Drive without Weighting Factor Assignment | **IEEE** Transactions on Power Electronics | Vol. 34, Issue 1, pp.503 - 513, 2019 | 6.812, 01 |
| Ravi Eswar K M, **Kunisetti V Praveen Kumar** & Vinay Kumar T | Modified Predictive Torque and Flux Control for Open End Winding Induction Motor Drive based on Ranking Method | **IET** Electric Power Applications | Vol. 12, Issue 4, pp.463 - 473, 2018 | 2.306, 04 |

**DETAILS OF ARTICLES PUBLISHED IN CONFERENCES**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Author(s)** | **Title of the Paper** | **Name of Conference** | **Name of Publisher** | **Year of Publication** |
| **K V Praveen Kumar** and T Vinay Kumar | Predictive Torque Control Strategy of an Open-End Winding Induction Motor Drive with Less Common-Mode Voltage | ICIT - IEEE 2018, **Lyon, France** | IEEE | 20-22 Feb, 2018,  |
| **K V Praveen Kumar** and T Vinay Kumar | Improvised Direct Torque Control Strategies of Open End Winding PMSM Fed with Multi-Level Inversion | ICIT - IEEE 2018, **Lyon, France** | IEEE | 20-22 Feb, 2018 |
| **K V Praveen Kumar** and T Vinay Kumar | Experimental implementation of direct torque control of open end winding induction motor | Region 10 Conference (**TENCON**), 2016 IEEE Singapore | IEEE | 22-25 Nov. 2016, Citations: 9 |
| **K V Praveen Kumar** and T Vinay Kumar | Direct torque control of brush less DC motor drive with modified switching algorithm | IEEE-PEDES-2016 | IEEE | 14-17 Dec. 2016 |
| Niraj Muley, Akshay Chabukswar, Rintu Sarkar, **K V Praveen Kumar**, T Vinay Kumar | Reduction of torque and flux ripples in Direct Torque controlled five-phase induction motor drive based on instantaneous voltage control technique | IEEE-PEDES-2016 | IEEE | 14-17 Dec. 2016 |

**SEMINARS/WORKSHOPS ATTENDED**

|  |  |
| --- | --- |
| **Number of Seminar / Conference papers presented** | **Number of Workshops attended** |
| Direct torque control of brush less DC motor drive with modified switching algorithm | Alternate Energy Sources for Distributed Generation (GIAN Workshop for 05 days in 2017) |
| Reduction of torque and flux ripples in Direct Torque controlled five-phase induction motor drive based on instantaneous voltage control technique | Power Conditioning for PV Systems (GIAN Workshop for 05 days in 2018) |
|  | Free and Open source software in Teaching and Learning (TEQIP workshop for 02 days in 2017) |
|  | Embedded system design using C2ooo (workshop by texas instruments at NIT Warangal for 02 days in 2017) |
|  | Power Supply Design using PMLK & Webench (Workshop by Texas Instruments at NIT Warangal for 01 day in 2017) |

**LABORATORY SKILLS**

**Laboratory Teaching Assistant**, Electrical Department- NIT Warangal 2015

* Trained Post Graduate Students on dSPACE DS 1104 controller board and developed programs for lab purpose.
* Trained Student on Simulation of Various Power Electronics Circuits in MATLAB

**Experience with the following Equipment**

* d-Space DS1104.
* PCB design with Orcad 9.2

**SOFTWARE SKILLS**

**Programming Languages:** C.

**Operating Systems:** Windows

**Application Packages:** MATLAB, SIMULINK

**CAMPUS AND COMMUNITY ACTIVITIES**

**Workshop Attended**

* Real time and Hardware in loop simulation using OPAL-RT in NIT Warangal
* Application of dSPACE and DSP’s in electrical applications in NIT Warangal
* Workshop on Robotics in JNTU Kakinada
* Simulation of Electrical Circuits using SCILAB in NIT Warangal.
* Free and Open Source Software in Teaching and Learning in NIT Warangal

**Student Activities Council**

* Representative for Research Scholars in Electrical Engineering Department NIT Warangal.
* Student Council President in M.Tech
* Member of Event Planning Committee of our department for the welfare of student organization “APOGEE” in Sri Mittapalli College of Engineering

**PERSONAL INFORMATION**

Name : **Kunisetti V Praveen Kumar**

Date of Birth : 20/08/1990

Sex : Male

Father’s Name : Sri. Kunisetti Nageswara Rao (Late)

Mother’s Name : Smt. Kunisetti V. V. Lakshmi

Nationality : Indian

Languages Known : English, Hindi & Telugu

(K. V. Praveen Kumar)