

Dr. KUNISETTI V PRAVEEN KUMAR

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PRESENT ADDRESS

K. V. Praveen Kumar, Assistant Professor,
Department of Electrical Engineering,
Sardar Vallabhbhai National Institute of Technology, Surat,
Gujarat, 395007.

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

SPONSORED PROJECTS

Project Title	Sponsoring Agency	Grant Received (INR)	Duration	Status
Development of enhanced Predictive Current Control and Predictive Torque Control strategies for Open-end Winding Permanent Magnet Synchronous Motor drive with less torque ripple for Electric Vehicles	Science and Engineering Research Board (SERB)	28,96,910.00	02 Years	On-going
Simplified Predictive Torque Control Strategies for an Induction Motor Drive	Sardar Vallabhbhai National Institute of Technology, Surat (SEED Money)	10,00,000.00	02 Years	On-going

ACADEMIC PROJECTS

Research Interests

Power Electronics, Multi-level Inverters, DTC for AC motor Drives, Model Predictive Control for AC motor Drives (including Special Machines).

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.

DETAILS OF ARTICLES PUBLISHED IN JOURNALS:

S. No	Author(s)	Title of Article	Name of Journal	Vol. No. Year and Page Number	Impact Factor
1.	Kasoju Bharath kumar & Kunisetti V Praveen Kumar	Simple predictive torque control of an open-end winding interior permanent magnet synchronous motor drive without weighting factor for electric vehicle applications	International Journal of Circuit Theory and Applications, Wiley	Accepted for Publication, 2023	2.3
2.	Kunisetti V Praveen Kumar & Vinay Kumar T	Enhanced Weighting Factor Eliminated Predictive Torque Control of an Open End Winding Induction Motor Drive	Electric Power Components and systems, Taylor & Francis	Vol. 50, Issue 7, pp. 318-330, 2022	1.5
3.	Kunisetti V Praveen Kumar & Vinay Kumar T	Enhanced predictive torque control of multi-level inverter fed open-end winding induction motor drive based on predictive angle control	European Power Electronics and Drives, Taylor & Francis	Accepted for Publication on Feb 19, 2020	0.26
4.	Kunisetti V Praveen Kumar & Vinay Kumar T	Enhanced direct torque control and predictive torque control strategies of an open-End winding induction motor drive to eliminate common-mode voltage and weighting factors	IET Power Electronics	Vol. 12, Issue 8, pp.1986-1997, 2019	2.67
5.	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	2.67
6.	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	2.83
7.	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	1.5
8.	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
9.	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	ESCI, SCOPUS, EBSCO
10.	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
11.	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	1.5
12.	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	Vol. 7, Issue 2, pp. 1162-1172, 2019	4.72
13.	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	6.8
14.	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	2.83

DETAILS OF ARTICLES PUBLISHED IN CONFERENCES:

S. No	Author(s)	Title of the Paper	Name of Conference	Name of Publisher	Year
1.	Kasoju Bharath Kumar & Kuniseti V. Praveen Kumar	An Improved Predictive Current Control Technique for Open-End Winding Interior Permanent Magnet Synchronous Motor Drive with reduced Ripples for EVs	2022 IEEE 2nd International Conference on Sustainable Energy and Future Electric Transportation (SeFeT)	IEEE	2022
2.	Ankita Sharma, Rajasekhareddy Chilipi & Kuniseti V. Praveen Kumar	Control of Modular Multilevel Converter-based Power Electronic Transformer for Grid Integration of Solar PV System	2022 IEEE 2nd International Conference on Sustainable Energy and Future Electric Transportation (SeFeT)	IEEE	2022
3.	Kasoju Bharath Kumar & Kuniseti V. Praveen Kumar	An Effective Predictive Torque Control Technique for Open-end Winding Permanent Magnet Synchronous Motor Drives with Reduced Ripples for EVs	2022 Second International Conference on Power, Control and Computing Technologies (ICPC2T)	IEEE	2022
4.	Ankita Sharma, Rajasekhareddy Chilipi & Kuniseti V. Praveen Kumar	Model Predictive Control of MMC-based Medium Voltage Microgrid for Grid Connected and Islanded Operation	2022 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)	IEEE	2022
5.	Ankita Sharma, Rajasekhareddy Chilipi & Kuniseti V. Praveen Kumar	Indirect model predictive control of grid connected modular multilevel converter	2021 National Power Electronics Conference (NPEC)	IEEE	2021
6.	K V Praveen Kumar and T Vinay Kumar	Space Vector Modulated Direct Torque Control of an Open-end Winding Induction Motor Drive with Three-Level Inversion	IECON 2021 – 47th Annual Conference of the IEEE Industrial Electronics Society	IEEE	2021
7.	Kuniseti V. Praveen Kumar	Selective Voltage Vector Based Predictive Torque Control of an Open-end Winding Induction Motor Drive with Four-Level Inversion for EV's	IECON 2021 – 47th Annual Conference of the IEEE Industrial Electronics Society	IEEE	2021
8.	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,
9.	K V Praveen Kumar and T Vinay Kumar	Improved Direct Torque Control Strategies of Open End Winding PMSM Fed with Multi-Level Inversion	ICIT- IEEE 2018, Lyon, France	IEEE	20-22 Feb, 2018
10.	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
11.	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
12.	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

Workshops/ STTP's Organised:

Title	Organized at	Organized by	From Date	To Date	Duration
Control of Power Electronic Converters for on grid and off grid systems	Sardar Vallabhbhai National Institute of Technology, Surat	Dr. K. V. Praveen Kumar, Dr. Sabha Raj Arya, Dr. Mahesh Aeidapu, Dr. J. Venkataramanaiah and Dr. Sushnigdha G	03/08/2020	07/08/2020	05 Days
Power Electronic Converters and Drives: Fundamentals, Implementation and Applications (PECD)	Sardar Vallabhbhai National Institute of Technology, Surat	Dr. K. V. Praveen Kumar, Dr. M. A. Mulla, and Dr. J. Venkataramanaiah	03/10/2020	07/10/2020	05 Days
Advancement in Electric Vehicle Technology: A step towards Development of sustainable Transportation System	Sardar Vallabhbhai National Institute of Technology, Surat	Dr. K. V. Praveen Kumar, Dr. V. A. Shah, Dr. Sabha Raj Arya and Dr. C. P. Gor	18/02/2021	22/02/2021	05 Days
EV Charging Technology and Infrastructure Development	Sardar Vallabhbhai National Institute of Technology, Surat	Dr. K. V. Praveen Kumar, Dr. V. A. Shah, Dr. C. P. Gor and Dr. Sukanta Halder	30/03/2023	03/04/2023	05 Days

Responsibilities at Institute Level:

Position	From Date	To Date
Warden (Gajjar Bhavan)	13/03/2021	Till Date
Member, Central Hostel Dicipinary Committee	03/05/2023	Till Date
Co-Chairman, Hostel Information Brochure Committee	21/06/2023	Till Date
Member, Hostel Allotment Committee	21/06/2023	Till Date
Member, Hostel Purchase Committee	24/04/2023	Till Date
Co-Chairman (Drishti-The Innovation Club)	09/10/2021	Till Date
Member- Institute Mechanical Maintenance Committee	06/06/2020	06/06/2022
Member- NIRF Committee	2020, 2021, 2022	--

*The above mentioned duties are of duration for more than 06 months. In addition to the above, the other responsibilities at the institute level has been carried out from time to time.

Responsibilities at Department Level:

Position	From Date	To Date
Co-Chairman (Department Time Table Committee)	09/05/2022	Till Date
Lab In-Charge (MFRD Lab)	03/03/2020	Till Date
Lab In-Charge (Electric Vehicles Lab)	03/09/2021	Till Date
Lab In-Charge (UG Project Lab)	03/09/2021	Till Date
Lab In-Charge (Instrumentation Lab)	03/09/2021	Till Date

*The above mentioned duties are of duration for more than 06 months. In addition to the above, the other responsibilities at the department level has been carried out from time to time.

Subjects Taught:

UG Level	PG Level
Electrical Networks	Electrical Drives (Partial)
Electrical and Electronic Measurements	
Electrical circuits	
Electromagnetic Field Theory	
Basics of Electrical Engineering	Modern Instrumentation (Partial)
Instrumentation	
Electronic Instrumentation	
Electrical Technology	

(K. V. Praveen Kumar)