BINITA NANDA

Binita Nanda
PhD Scholar
Department of EEE
Indian Institute of Technology
Guwahati, 781 039 Assam
Email: **binita.nanda@iitg.ac.in/ nanda.binita24@gmail.com**
Weblink: **https://www.iitg.ac.in/e_mobility/team.html**

EDUCATIONAL QUALIFICATION

DEGREE	SPECIALIZATION/BRANCH	INSTITUTION/BOARD	CGPA/PERCENTAGE
PhD (July 2015-till date)	**Electrical Machines & Drives**	**IIT Guwahati**	**7.8 (CGPA) (course-work)**
M.Tech (2013-2015)	**Power System Engineering**	**NIT Jamshedpur**	**9.37 (CGPA)**
B.Tech (2008-2012)	**Electrical & Electronics Engineering**	**Gandhi Engineering College (BPUT Odisha)**	**8.97 (CGPA)**

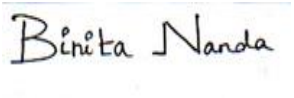
PROFESSIONAL DETAILS

RESEARCH INTEREST	EV motor design, Finite Element Analysis, Motor Design Algorithms.
KEY STRENGTHS	FEA, Mathematical Modelling, Motor Prototyping, Motor Testbed Development.
SKILLS & ABILITIES	**Software:** • Electromagnetic design and simulation (Ansys Maxwell) • MATLAB Simulink with a real-time microcontroller interface • PCB Design using Design Spark and Eagle • Math analysis software: MATLAB, Maple, Excel. • Programming Language: C, C++, Microsoft VBA, Python • Embedded programming: Arduino, D-Space. • Documentation : Latex and Microsoft tools • AI Assistant : IBM Watson Development Platform **Hardware:** • Motor prototype Familiar with hand soldering (for SMD & through-hole components). • PCB design and printing.

PROFESSIONAL ACTIVITIES	**Teaching Assistantship:** • EE-381: Electrical Machines Laboratory, Autumn 2016, 2018, 2017, 2019. • EE-102: Basic Electronics Laboratory, Spring 2016, 2020. • EE-580: Control of Electric Drives , Spring 2018, 2019 • EE-101 Electrical Sciences Tutorial, Autumn 2015, 2017. **Professional Memberships:** • Student Member IEEE • IEEE Power Electronic Society Member
PUBLICATIONS	**Conferences** • ***Binita Nanda*** and P. Kumar, "Determination of D and Q Axes Inductances for Steady State Model Analysis of PM Motor with Non-Ideal Machine Parameters," 2019 IEEE Transportation Electrification Conference and Expo (ITEC), Detroit, MI, USA, 2019, pp. 1-6, doi: 10.1109/ITEC.2019.8790609. • ***Binita Nanda*** and P. Kumar, "Analytical Model of Surface Mounted Permanent Magnet Motor for Sensitivity Analysis under Manufacturing Tolerances," 2018 IEEE Power & Energy Society General Meeting (PESGM), Portland, OR, 2018, pp. 1-5, doi: 10.1109/PESGM.2018.8586193. **Journal** • ***Binita Nanda*** and A.N Thakur, "Fuzzy logic based Field Oriented Control of Permanent magnet synchronous motor," 10.18479/ijeedc/2015/v3i8/48350 . • ***Binita Nanda*** and P. Kumar, "Qualitative and quantitative analysis of different inductance measurement techniques for IPM Synchronous Machines," in IEEE Transactions on Energy Conversion, doi: 10.1109/TEC.2021.3070087.
INDUSTRIAL VISITS	**NFTDC, Hyderabad, July 2016 and March 2017** • Study of electrical machine design and manufacturing process. • Design and prototyping of a 750 W IPM motor for two wheeler EV application. **Odisha power training center (OPTCL) ,Chandaka, June 2011 to July 2011** • Studied the working of relays and circuit breakers, starters of induction motor & transformer tests.

ACADEMIC HONOURS	• Attended ITEC 2019 conference at Michigan, US, to present a paper in June 2019. • Received MHRD Masters scholarship from July 2013 to July 2015. • Received MHRD Doctoral scholarship from July 2015 to July 2020. • Qualified the written test and attended the interview for the OCES/DGFS-2013 programs of the Bhaba Atomic Research Centre Training School (BARC).
LEADERSHIP	• Conducted a workshop on Microsoft VBA in Research Conclave 2018 at Indian Institute of Technology Guwahati. • Organizing team member of EV Conclave 2018 at IIT Guwahati.
PROJECTS	**Phd research projects, IIT Guwahati** • Design of high power and torque density IPM motor of 12.5 KW for four-wheeler EV application. • Design and prototyping of a modified rotor lamination of a 750 W IPM motor for EV application to reduce the cogging torque and torque ripple. (*Hardware development*). • Design and testing of an open-loop controller for IPM motor fit in a prototyped two-wheeler EV using Arduino. (*Hardware development*). • Hardware implementation of SPWM technique for IPM motor control using D-Space. • Design of a Buck-boost converter. (*Hardware development*). • Design of an inverter for 1KW IPM drivetrain (*Hardware development*). **Development of motors for light commercial, e-mobility lab, IIT Guwahati** Sponsoring Agency: ***NFTDC Hyderabad*** Period: October 2016 to June 2017 • Design, optimization and prototyping of 12kW high power density and energy density motors. • Development of speed and torque controller. **Development of e-scooter, e-mobility lab, IIT Guwahati** Sponsoring Agency: ***NFTDC Hyderabad*** Period: Aug 2017 to Dec 2018 • Design and prototyping of the drivetrain. • Speed controller development.

	Epstein frame, e-mobility lab, IIT Guwahati Period: June 2017 to July 2017 • Design and prototyping of Epstein frame according to IEEE standard. • Motor lamination steel characterization using the Epstein frame. • Measurement of core losses in the ferromagnetic materials from 50Hz to 2kHz and flux density from 0.1T to 2T. **Techno commercial Evaluation of EV Drivetrain for Commercial Vehicles, e-mobility lab, IIT Guwahati** Sponsoring Agency: ***Ashok Leyland*** Period: August 2018 to March 2019 • Identify the suitable drivetrain configuration based on multicriteria decision making. • Selection of motor topologies for various drivetrain configurations. • Identify the configurations for the motor topologies. **M.Tech Research Project, NIT Jamshedpur** • Fuzzy logic based Field Oriented Control (FOC) of Permanent magnet (PM) synchronous motor **B.Tech Research Project, GEC Bhubaneswar (BPUT)** • Temperature based fuzzy logic control of single-phase DC motor
REFERENCES	**Prof. Praveen Kumar** Professor Department of Electronics and Electrical Engineering Indian Institute of Technology (IIT) Guwahati North Guwahati, 781 039 Assam, India Tel.: +91-361-2582525 (O); Fax: +91-361-2582542 Email: praveen_kumar@iitg.ac.in

	Dr. Sisir Kumar Associate Professor Professor Department of Electronics and Electrical Engineering Indian Institute of Technology (IIT) Guwahati North Guwahati, 781 039 Assam, India Tel.: +91-361-2582530 (O); Fax: +91-361-2582542 Email: sknayak@iitg.ac.in
DECLARATION	I declare that the information provided above is accurate to the best of my knowledge and belief.  Place: IIT Guwahati Date: 4/3/2021 (Binita Nanda)