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E Mobility Lab, IIT Guwahati, India

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Research Interest:

1. Design, analysis and testing of rotating electrical machines
2. Numerical methods for electromagnetic field computation
3. Performance evaluation for optimal electromagnetic design
4. Electric vehicle technology

Professional Skills:

Software:

Electromagnetic design and simulation (**Ansys Maxwell**)

- **MATLAB Simulink** with a real-time **microcontroller interface**
- PCB Design: **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**

Hardware:

Prototype development, familiar with hand soldering (for SMD & through-hole components), sensor interface and gate driver circuits design, three-phase inverter, power supply for gate driver circuit.

Rajendra Kumar

PhD Scholar

[Detailed CV](#)

I am currently working toward the PhD degree in electrical engineering under supervision of [Prof. Dr.-Ing. Praveen Kumar](#) in the [Electric Mobility Lab](#) at [Indian Institute of Technology Guwahati](#).

My PhD work is about designing, prototyping, analysis, and testing of Induction Motors (IM). The work focus on developing mathematical models for stator losses in inverter fed IMs. The work was supported by Toshiba Mitsubishi Electrical Industrial Systems (TMEIC), Japan.

I graduated from Rajasthan University, India, with electrical engineering as a major. Afterwards, I joined IIT Kanpur for a two-year master's course in nuclear engineering and technology. Prior to joining the PhD, I worked as a project engineer (commissioning-electrical) for two and a half years in PM Dimension(P) Ltd-Kalpakkam project office and, then joined Marwadi Education Foundation, Rajkot as a faculty member for three years.

My work domain primarily includes:

- Finite Element Modelling (FEM) and Analytical Modelling of electromagnetic energy conversion devices.
- Design of energy efficient rotating machines.
- Measurement and testing of electrical machines based on IEEE, IEC, IS, JEC standards.
- Analyse the impact of various design parameters on motor performance,
- Evaluation and modelling of electromagnetic losses.
- Motor design and drives for EV applications.

For more details, check my [CV](#).