Samiksha Baid **183079014**
Electrical Engineering **M.Tech.**
Indian Institute of Technology, Bombay **Gender: Female**
Specialization: Power Electronics and Power System **DOB: 07-10-1995**

Examination	University	Institute	Year	CPI / %
Post Graduation	IIT Bombay	IIT Bombay	2021	9.77
Graduation	VNIT	VNIT	2017	9.45
Graduation Specialization: Electrical and Electronics				
Intermediate	Maharashtra	ANC	2013	94.60%
Matriculation	CBSE	SAPS	2011	96.60%

ACADEMIC PROJECTS AND SEMINAR

- **Sensorless Rotor Position Estimation Of A Permanent Magnet Synchronous Machine**
  Guide: *Prof. Anil Kulkarni & Prof.B.G. Fernandes,* EE Dept., IIT Bombay. *MTech Project (Jun'20 - present)*
  - ***Work done:***
    - Studied d-q model of Permanent Magnet Synchronous Machine (PMSM).
    - Implemented least square estimation of d-q inductances of PMSM from voltage and current waveforms measured on the test bench.
    - Comparative performance evaluation of multiple sensorless techniques like Extended Kalman filter, Improved PLL etc., on the MATLAB Simulink simulation model.
  - ***Future work:***
    - Develop an algorithm which can determine rotor position at low RPMs .
    - Implementing a smooth state transition from a low-speed sensorless model (to be used below 500RPM) to a high-speed model.
    - Build the test setup of the PMSM drive and compare dynamic performance of the sensorless control against the conventional hall-sensor based drive.
- **Case Study on Grid-Integrated Solar Photovoltaic System**
  Guide: *Prof. M. Khedkar,* VNIT , Nagpur. *B.Tech Project (Aug'16 - May'17)*
  - Developed a MATLAB model of an existing on field grid integrated solar system ,implemented MPPT, designed filter for controlling THD to check power factor improvement and compared the results with the existing system.
- **Review of Resonant DC Link Converters**
  Guide: *Prof. Mukul C. Chandorkar,* EE Dept., IIT Bombay. *MTech Seminar (Aug'19 - Nov'19)*
  - Studied the various categories of resonant converters with special emphasis on Resonant DC Link Converters, it's different topologies, control architectures and operation.

SCHOLASTIC ACHIEVEMENTS

- Current **Department Rank 2** amongst M.Tech RAs
- Secured **99.28 percentile** in GATE-'18 in EE among 1,21,383 candidates
- Secured **Highest CGPA in Department** in B.Tech (EEE) VNIT(Jul'13-May'17)

RELEVANT COURSES

- High Power Converters and their Utility Application, Electric Drives, HVDC Transmission
- Computer Aided Power System Analysis, Power System Dynamics and control
- Microprocessor Application in Power Electronics(PE), Embedded System Design
- Introduction to Machine Learning , Computational Techniques in Electrical Engineering

AREAS OF INTEREST

- Electric Machine and drives for traction applications, PE Converter topologies and control
- Embedded Systems design and applications, Machine learning

TECHNICAL SKILLS

- **Languages:** C, C++, Embedded C, Python
- **Tools:** MATLAB-Simulink, Octave, Eagle, Diptrace, LaTeX , Gnuplot , Inkscape, Visio ,CCS
- **Hardware**: TI-Tiva(TM4C123) processor, TI-TMS320F28379D Controller

COURSE PROJECTS

- **Modelling of Induction machine to study its control characteristics and dynamics**
  Instructor: *Prof. Patil , Prof . Bellur, Prof. Appaiah*, IIT Bombay. *Computational Tech. in EE (Mar-Apr'20)*
  - Developed model of Induction machine in d-q frame in python.
  - Developed GUI to study different control characteristics under different control schemes.
- **Profiling of Home equipment using wi-fi ESP8266 module and Tiva board**
  Instructor: *Prof. D.K. Sharma ,Prof P. C. Pandey*, IIT Bombay. *Embedded System Design (Feb'19-April'19)*
  - Developed an embedded system with a user friendly GUI, web page hosted over server.
  - Optimized the intensity of a LED light fixature with logarithmic variation of light and Controlled the speed of fan for a particular work station.
  - Complete design of hardware for speed and intensity control was developed in diptrace.
- **Mid-point voltage regulation of a 220kV system using FACTS devices**
  Instructor: *Prof. Anshuman Shukla*, IIT Bombay. *High Power Converters & Utility App. (Feb'19-Apr'19)*
  - Designed and simulated STATCOM and SVC (FC-TCR and TSC) in MATLAB/Simulink for regulating the midpoint voltage of given system in the range of 0.7 p.u. to 1.3 p.u.
  - Direct and Indirect controls were implemented for STATCOM using a two-level converter.
- **Design and hardware implementation of a Buck Converter**
  Instructor: *Prof.K. C. Chatterjee,* IIT Bombay. *Power Systems and Power Electronics Lab: (Aug-Nov'18)*
  - Hardware implementation of Buck Converter with 30W, 12V outputs using IRF640N MOSFET.
  - Designed a compact PCB using EagleCAD for the overall circuit.
- **Simulation of HVDC Transmission System**
  Instructor: *Prof. Himanshu Bahirat*, IIT Bombay. *HVDC Transmission (Apr'19)*
  - Designed PLL, current controller and voltage controller for line commutated converters on rectifier and inverter ends of 500kV, 1GW CIGRE benchmark model.
  - The startup and operation of the HVDC transmission model was simulated in MATLAB Simulink.
- **Transient stability analysis of two alternators interconnected via TL**
  Instructor: *Prof. Anil Kulkarni*, IIT Bombay. *Power System Dynamics and Control (Nov'19)*
  - Generator 2.2 model was considered along with AVR and frequency governor control.
  - Implemented a MATLAB script to study transient stability of system under different contingencies.

POSITIONS OF RESPONSIBILITY

- **Research Assistant of Electrical Machines Lab at IIT Bombay** ***(July'18 - Present)***
  - Responsible for day to day functioning of Lab.
  - TA for Machines Lab (EE234) and Power Systems and Power Electronics Lab (EE673).
  - Conducted various demonstrations and tutorials for B.Tech and M.Tech students.
- **Student Companion-ISCP, IIT Bombay** ***(April'19 - Mar'20)***
  - Mentored 10 Freshmen Mtech Students from Department of Electrical Engineering and helped them by providing continuous help and support , both on academic and non-academic fronts.
- **Overall Coordinator for Bridge course 2019 ,EE Dept., IIT Bombay** ***(Jun'19 - May'20)***
  - Headed the Bridge Course team of 32 members of Electrical Department
  - Co-ordinated with the team to organize a week-long programme for the freshmen to ensure their smooth transition to academics at IITB.

EXTRA CURRICULAR ACTIVITIES

- Successfully Completed **Yogathon Challenge (108 Suryanamaskar)** organized by yogastha club of IIT Bombay.
- Participated in various department level competitions like Rangoli, T-shirt , Mask , Pot painting etc.
- Participated in various department level sports like chess, carrom and cricket.
- Volunteered in department convocation in 2018 and 2019.