Sougat Kumar Sarangi

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SUMMARY

A self-motivated and passionate post-graduate, with an inquisitiveness in control system and machine learning and their application in the field of renewable energy and electric vehicles. A dedicated student of control system group with a strong hold in MATALB-Simulink. Well versed in C and python, I also have an interest to explore the field of robotics as well.

ACADEMIC DETAILS

Qualification	Branch / Board	Institute / School	Year	CGPA
M.Tech	Control & Automation	NIT Rourkela	2019	8.15
B.Tech	Electrical Engineering	NIT Rourkela	2018	7.51
Class XII	CBSE	DAV Public School, Dera	2013	91.60 %

TECHNICAL SKILLS

Languages	:	C programming, Embedded C, Python, VB Scripting, Latex
Simulation	:	MATLAB-Simulink, Proteus, d-SPACE Control Desk, d-SPACE Automation Desk
Hardware	:	8051, Atmega 328P (Arduino board), dSPACE HIL Simulator
Relevant Courses	:	Embedded Systems, Control System, Soft Computing, Digital Control, Non-linear Control Systems, Adaptive Signal Processing, System Identification and Adaptive Control

RESEARCH EXPERIENCE

M.Tech in Control and Automation NIT Rourkela: *(July 2018 - June 2019)*

Guide: *Prof. Monalisa Pattanaik, NIT Rourkela*

Thesis: Development and Implementation of a DC Motor based Wind Turbine Emulator Using Sliding Mode Controller

- Modelled the DC motor system along with various other power electronic and control circuits involved in designing the whole system and simulated it in MATLAB-Simulink.
- Developed a 1st order non-linear sliding mode controller to control the DC motor for wind turbine emulation.
- Designed a prototype model of the system using Arduino microcontroller and implemented PI controller for comparative study with the proposed non-linear sliding mode controller.
- A rapid prototyping of the system was also done using dSPACE DS-1103 controller for Hardware-in-loop validation of the simulated model in the real world scenario.

Research Intern at IIT Madras: *(May 2017 – July 2017)*

Guide: *Prof. Rachel Kalpana Kalaimani, Control System Group, IIT Madras*

Project: Robust Control Systems in LIGO (Laser Interferometry Gravitational Wave Observatory)

- Did literature review of the existing theories of the LIGO and analysed the already implemented control algorithms.
- Assisted in deriving the state-space model of the suspension system used in LIGO.
- Attempted to model the whole plant model of the suspension system in MATLAB and do its input output analysis to get a better understanding of the whole system.

Product Development Lab, NIT Rourkela: *(Sept 2016 – Nov 2016)*

Guide: *Prof. Somnath Maity, NIT Rourkela*

Project: Design and analysis of DC-DC buck converter

- Designed a buck converter on a PCB board by designing the layout using EAGLE CAD software.
- Made efforts to minimize the form factor of the single layered PCB board.
- Studied the open loop and closed loop characteristics of the buck converter and also investigated the continuous and discontinuous modes of operation.

PUBLICATIONS

[1] Behera, P.K., Mendi, B., **Sarangi, S.K.**, Pattnaik, M. and IEEE, S.M., 2021. Robust wind turbine emulator design using sliding mode controller. *Renewable Energy Focus*, *36*, pp.79-88.

[2] Balaji, M., **Sarangi, S.K.** and Pattnaik, M., 2019, July. "Design of a DC Motor based Wind Turbine Emulator using Sliding Mode Control Approach". In *2019 IEEE 1st International Conference on Energy, Systems and Information Processing (ICESIP)* (pp. 1-5).

WORK EXPERIENCE

Trainee, Software Engineer, KPIT Technologies Ltd   *(July 2019 - Oct 2020)*

- Debugged and fixed embedded software issues of an automotive ECU for the chassis control module by carrying out MIL, SIL and HIL testing and validation of the software builds.
- Reduced testing time by 60 % through automation of test cases using dSPACE Automation Desk and Python.
- Modelled and simulated the ABS sub-system for the ADAS project, using MATLAB-Simulink and Stateflow.
- Automated various data handling and file management works through VB-scripting in Excel.
- Did requirement management using IBM DOORS.

ACHIEVEMENTS AND RESPONSIBILITIES

- Member- Bless'n'Bliss (an NGO)
- Technical Team Lead- Entrepreneurship Cell, NIT Rourkela
- Core Member, Technical Team- Innovision 2016, NIT Rourkela
- Ranked among top 90 percentile in GATE 2018 and short-listed for MHRD-GATE scholarship
- Won Coal India Ltd scholarship for Engineering for 4 consecutive years during B.Tech

References

- **Prof. Monalisa Pattnaik – Assistant Professor, NIT Rourkela**
  Email ID: pattnaikm@nitrkl.ac.in
- **Suresh Anisetti – Manager, KPIT Technologies Ltd**
  Email ID: suresh.anisetti@kpit.com
- **Ejaz H – Manager, KPIT Technologies Ltd**
  Email ID: ejaz.h@kpit.com