



# Harisankar Suresh

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## SUMMARY

Experienced Computational Engineer with expertise in Finite Element Analysis (FEA), battery modeling, and data-driven simulations. Proven track record in structural analysis, multi-physics simulations, and machine learning applications for predictive modeling. Proficient in Python, MATLAB, and COMSOL with experience in HPC environments.

## EDUCATION

• <b>BITS Pilani, Hyderabad Campus</b>	2023
<i>M.E in Mechanical Engineering</i>	CGPA: 8.00
• <b>Amrita School of Engineering, Amritapuri Campus</b>	2021
<i>BTech in Mechanical Engineering</i>	CGPA: 7.62
• <b>Christ Nagar English Higher Secondary School, Kerala</b>	2017
<i>Higher Secondary Education, Kerala State Board of Education</i>	Percentage: 94.5

## EXPERIENCE

<b>Ola Electric Technologies Pvt. Ltd.</b>	12/05/2025 - present
<i>Assistant Manager, Cell Modelling Engineer</i>	Bengaluru
<ul style="list-style-type: none"><li>Developed SoH realtime prediction models in PyBaMM and GT-Autolion to validate field test data for NMC chemistry based cells</li><li>Co-simulation models in MATLAB and Simulink for error estimation of SoC and SoH.</li><li>Built automation pipelines for performance and range predictions in GT-Suite simulations</li><li>Developed dashboards for service complaints data in issues in field for battery and other related ev components</li><li>Developed SoC and SoH physics based prediction models for Ola Bharat 4680 ,LG and BAK cells</li><li>Implemented validation checks, unit-style testing, and debugging workflows for simulation and analytics pipelines</li><li>Worked with SQL databases (PostgreSQL, MongoDB) for analytics and validation</li></ul>	
<b>SAR Electric Mobility (Lime.ai)</b>	16/01/2023 - 06/05/2025
<i>Sr. Engineer</i>	Bengaluru
<ul style="list-style-type: none"><li>Developed finite element models to analyze mechanical stress and strain in battery structures, optimizing performance and ensuring compliance with industry standards.</li><li>Designed and optimized Kalman filter-based algorithms for SoC estimation in NMC and LMFP chemistries.</li><li>Built scalable data pipelines and analytics frameworks for IoT-based battery data processing.</li><li>Conducted computational fluid dynamics (CFD) and thermal analysis to improve cooling efficiency in battery packs.</li><li>Implemented data-driven predictive modeling to estimate battery aging and degradation using statistical process analysis..</li><li>Led the development of machine learning algorithms for real-time state of health (SoH) prediction and fault detection.</li></ul>	
<b>BITS Pilani, Hyderabad Campus</b>	01/01/2022 - 31/12/2022
<i>Teaching Assistant</i>	Hyderabad
<ul style="list-style-type: none"><li>Conducted labs for AI-driven ADAS concepts</li><li>Mentored students on Python-based ML implementations</li></ul>	
<b>Satish Dhawan Space Centre, ISRO</b>	2018
<i>Intern</i>	Sriharikota
<ul style="list-style-type: none"><li>Gained hands-on experience with cryogenic fuel systems, storage, and compressed gas facilities.</li><li>Monitored data operations of cryogenic compressors, pumps, and storage systems.</li></ul>	

## PROJECTS

• <b>olabatsim, Ola</b>	06/2023-present
<i>Developed a battery simulation platform for running simulations through Python as well as GUI</i>	
<ul style="list-style-type: none"><li>Tools &amp; technologies used: PyBaMM,GT-Suite,Streamlit,Pandas, NumPy, ,Version Control: Git</li><li>Developed battery simulation platform for fast simulation from processed live data from field.</li><li>achieved less than 2% error when data loss is found in SoH changes.</li><li>Successfully predicted voltages in field using the SPM model with less than 1% error.</li></ul>	
• <b>lime internal getter, Lime.ai</b>	01/2023-06/2025
<i>Developed an internal data handling library, lime internal getter, for streamlined data retrieval at Lime.ai.</i>	

- Tools & technologies used: Pandas, NumPy, DB, Requests, REST APIs, Multiprocessing, AsyncIO, Logging module, Exception handling, Version Control: Git
- Developed an internal data handling library for streamlined data retrieval at Lime.ai
- Optimized data access and processing, enhancing efficiency in internal analytics workflows.
- Integrated with IoT pipelines for serial number and IMEI-based retrieval and model testing.
- link for reference lime\_internal\_getter

#### •Cell Unbalance Prediction, Lime.ai

03/2024-01/2025

*Developed an LLM-based model for predicting cell unbalance dates with 90% accuracy.*

- Tools & technologies used: Python, Scipy, Huggingface, Chronos
- Accomplished model to predict the unbalance date upto 90% accuracy

#### •Physics Based Cell Modelling, Lime.ai

01/2023-present

*Designed a physics-based NMC & LFP cell model for fast simulation and charging pattern analysis.*

- Achieved a voltage profile match with experimental data.
- Tools & technologies used: PyBaMM, COMSOL, Python, Scipy, PyGAD, MATLAB, Simulink

#### •Physics Informed Model, Lime.ai

08/2023-06/2025

*Developed a physics based to correct SoH & SoC for BMS and accurate fast charging profiles.*

- Achieved 2x lower error than competitor models , and accurate voltage profile match with experiment data.
- Tools & technologies used: Python, C, Scipy, COMSOL, Git

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## TECHNICAL SKILLS AND INTERESTS

**Developer Tools:** Python, C, Git, Go, PyTorch, Tensorflow, PyBaMM

**Softwares:** GT-Suite, COMSOL, ANSYS, Solidworks

**Cloud/Databases:** MongoDB, PostgreSQL

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## ACHIEVEMENTS

### Best Performer of the month

09/10/2023

Lime.ai

- for outstanding contributions towards modelling algorithms and analysis in July, August and September 2023

### Value Award AIM & ACT

01/08/2024

Lime.ai

- Team award received for Cell Algorithm modeling team for developing advanced State of charge prediction algorithm

### ISVE Best Paper Award

29/11/2022

Artifical Intelligence & Deep Learning Section

- 8th International Conference of Nanoelectronics, Computational Intelligence and Communication Systems

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## PUBLICATIONS

### Effects of Systemic Error on Localization and Control of Differential Drive Mobile Robot

18/12/2023

International Journal of Microsystems and IoT

- Investigated the errors occurring during localization of the robot with Kalman Filter using case studies with ultra-sonic sensor readings.
- doi: 10.5281/zenodo.10441392

### Steady state thermal simulation of high temperature PEM fuel cell with different flow field patterns

03/06/2024

AIP Publishing

- A comparison studies of different flow designs for PEM Fuel cells to have optimised performance..
- doi: 10.1063/5.0118593

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## SOFT SKILLS

**Languages:** English, Hindi, Malayalam

**Soft Skills:** Project Management, Leadership, Communication

**Areas of Interest:** AI, ML, Embedded Algorithms, Data Science, Semiconductor industry

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## ORGANIZATIONS

### •Intern, Thanal

2019

- Have Collected details about carbon emissions in Wayanad District, Kerala as a part of Carbon Neutral Project