



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

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

EXPERIENCE

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

PROJECTS

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| •olabatsim, Ola | 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">– Tools & technologies used: PyBaMM,GT-Suite,Streamlit,Pandas, NumPy, ,Version Control: Git– Developed battery simulation platform for fast simulation from processed live data from field.– achieved less than 2% error when data loss is found in SoH changes.– Successfully predicted voltages in field using the SPM_e model with less than 1% error. | |
| •lime internal getter, Lime.ai | 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

TECHNICAL SKILLS AND INTERESTS

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

Softwares: GT-Suite, COMSOL, ANSYS, Solidworks

Cloud/Databases: MongoDB, PostgreSQL

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 recieved for Cell Algorithm modeling team for developing advanced State of charge prediction algorithm

ISVE Best Paper Award

29/11/2022

Artificial Intelligence & Deep Learning Section

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

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 ultrasonic 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

SOFT SKILLS

Languages: English, Hindi, Malayalam

Soft Skills: Project Management, Leadership, Communication

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

ORGANIZATIONS

•Intern, Thanal

2019

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