LOKESH REDDY DALLI

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Areas of Expertise

- Li-ion batteries - Synthesized cathode materials (LMFP) using solvothermal and solid-state sintering methods.
- Battery Capacity and Energy Storage - Implemented techniques like coating, doping, and pre-lithiation to improve properties of LFP Batteries.
- Developed Coin cells, delivered functional batteries from raw materials to final assembly.
- Performed Battery Testing and Validation - Cyclic Voltammetry and Cycling Stability Tests (equipment: Arbin's, Maccor's).
- Executed electrochemical testing techniques (Galvanostatic)GITT, (Potentiostatic) PITT, and EIS (Impedance spectroscopy).
- Gained experience with writing scripts for automating Battery testing using Python to execute test plans.
- Proficient in using Python to analyze battery test data and extract valuable insights.

Skills & Tools

- **Engineering and Laboratory Skills:** Battery performance testing, Wet Lab Experience, Root Cause Analysis, Glove Box, Tube Furnace, Carbon Coating, Optical Microscope, SEM, XRD, Coin Cell fabrication, Non-Destructive Testing (NDT).
- **Programming Languages & Software:** C, Python, SQL, Jupyter Notebook, VASP, VESTA, AutoCAD, SOLID EDGE, MATLAB.
- **Data Analysis tools:** NumPy, Pandas, SciPy, Scikit-Learn, MySQL, Excel, Seaborn, Matplotlib, Tableau, Power BI.

Education

- **Master of Science | Materials Science and Engineering** **(GPA - 3.93)** **Sep 2021 - Mar 2024**
  University of Washington, Seattle, WA.
  Relevant Coursework: Battery materials, Design of Experiments (DOE), Data Science, and Materials Informatics.
- **Bachelor of Technology| Materials Science and Metallurgical Engineering** **(GPA - 3.43)** **Aug 2017 - May 2021**
  Indian Institute of Technology, Hyderabad (**minor in Design**)

Relevant Experience

Graduate Research Assistant - Battery Research | University of Washington | **Sep 2022 - Mar 2024**

- Synthesized cathode materials (LMFP) for Li-ion batteries and utilized XRD and SEM for characterization.
- Optimized Fe-Mn ratio in LiFeMnPO4 cathode material, resulting in 5% enhanced capacity retention.
- Enhanced apparent conductivity by 10% through the implementation of carbon coating surface modification techniques.
- Implemented advanced pre-lithiation methods, improving the specific and volumetric energy density for Li-ion cells by ~ 5%.
- Optimized the LiFeMnPO4 with varying Fe-NMC622 (Nickel, Cobalt, Manganese) ratios for high-performance Li-ion batteries.
- Implemented Root cause analysis to troubleshoot the issues during Battery testing.
- Experience with Lab testing equipment involving different modes of Electronic Loads (CC, CV).

Graduate Research Assistant - Materials Characterization | University of Washington **Sep 2022 - Dec 2022**

- Utilized Python to analyze amino acid data obtained from multiple characterization techniques (XPS, Raman, and FTIR) to measure isotopic shifts of site-specific vibrational modes.
- Generated plots using Python libraries for spectroscopic analysis, revealing molecular characteristics of amino acids.

Data Analyst | Tredence Inc. **Jul 2021 - Jul 2022**

- Implemented a highly effective data-driven approach using Python, SQL for a Cruise Line Project which resulted increase in customer loyalty and a significant annual revenue increase.
- Demonstrated outstanding leadership and communication skills in a cross functional team, resulting in high client satisfaction.

Vizag Steel Plant, Intern **Sep 2019 - Dec 2019**

- Attained valuable hands-on experience and a comprehensive understanding of the workings of a blast furnace.
- Conducted Ultrasonic Testing on steel components to detect defects, ensuring quality control during manufacturing.

Projects

- Classified 5 types of MoS2 defects using Machine Learning, achieving high accuracy (97%) with scikit-image and nion-swift.
- Developed a predictive model for aqueous solubility, analyzing 9,982 molecules with random forest regression (R2 score 0.79).
- Designed a device that can detect accidents, from concept to final product - using an accelerometer, and GPS tracker.