Soohwan Kim

Battery Cell Engineer | Buffalo, NY | purdueussh@gmail.com | 765-586-5674
LinkedIn: linkedin.com/in/soohwan-kim-369384215 | Website: skim5674.github.io
US Permanent Resident — Authorized to work for any employer

Summary

Battery cell engineer with expertise in electrochemical diagnostics, automated cell-testing data systems, and cell validation workflows. Experienced with Python/SQL automation, SLP test infrastructure, and battery cell investigations.

Technical Skills

Battery Cell Testing: Arbin, Neware, Maccor, BioLogic, Gamry, TOYO
Electrochemical Analysis: Coin/pouch cell build, EIS, GITT, CV, PITT, dQ/dV, dV/dQ
Software & Data: Python, SQL, Tableau, Power BI
Materials Characterization: SEM, XRD, TEM, Raman, FT-IR, DSC, TGA, XPS

Selected Projects

Automated Cell-Testing Data Pipeline (Alkegen) — Designed a Python + SQL workflow integrating Arbin/Neware datasets into Tableau/Power BI, cutting manual processing by >90% and enabling real-time performance visibility.

SLP Test-Infrastructure & SOP Development (Alkegen) — Commissioned two 96-channel Arbin systems and environmental chambers with Gamry potentiostats; authored standardized SLP build/validation SOPs improving test throughput, reproducibility, and QC consistency.

Current-Violation & DCFC Risk Assessment (Rivian) — Conducted current-violation and DC fast-charging tests on 3-electrode pouch and 2170 cells; performed teardown-based failure analysis and defined operational limits applied to EV battery-integration decisions.

Experience

Alkegen — Battery Cell Testing & Optimization Engineer (Aug 2024 – Present)
- Lead Si-anode full-cell validation (coin & SLP) and guide design changes to improve cycle performance.
- Develop automated test data dashboards reducing reporting time and eliminating manual processing.
- Built and maintain a real-time channel-monitoring dashboard for >300 cell tester channels, tracking utilization and unsafe condition.
- Author SOPs for cell builds, tester operation, and data workflows across the Si-anode development program.

Rivian Automotive — Battery Cell Engineer Intern (Jun 2023 – Dec 2023)
- Executed DCFC cycling and current-violation mapping of 2170 and 3-electrode pouch cells.
- Performed tear-down-based root-cause analysis to identify degradation mechanisms.
- Improved SOH estimation workflows and contributed to equipment-upgrade specifications.

Purdue University — Graduate Research Assistant (2021 – 2024)
- Developed low-temperature Li-ion system operable down to –100 °C; published in reputable journals.
- Performed electrolyte/electrode design, prototype builds, and materials/electrochemical characterizations.

Education

Ph.D., Chemical Engineering – Purdue University, Aug 2024 | GPA: 3.68/4.0
M.S., Energy Engineering – Hanyang University, Feb 2020 | GPA: 4.5/4.5
B.S., Energy Engineering – Hanyang University, Feb 2018 | GPA: 4.18/4.5

Publications & Patent

Full list available on Google Scholar - https://scholar.google.com/citations?user=e5cvYMAAAAAJ&hl=ko
US Patent 20230369650A1 — Electrolyte Compositions for Use in Electrochemical Cells

Awards

Graduate Student Recognition Award (2024), **Bilsland Dissertation Fellowship** (2024)
GUINNESS WORLD RECORDS™ - Lowest Temperature (-100 °C) to Charge a Lithium-ion Battery (2021)