YUHAO WANG

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EDUCATION

University of California at Berkeley, Master of Science, Materials Science and Engineering
GPA: 4.00/4.00; Graduation in **May 2022.**

University of California at Berkeley, Bachelor of Science, Materials Science and Engineering
GPA:3.99/4.00; Graduation with **Highest Honors** in May 2020.

Relevant Coursework: Materials Characterization; Corrosion; Microfabrication Technology; Thin-film Science and Technology; Semiconductor Materials; Electronic Materials; Polymer Materials, Computer Programming.

SKILLS

- Materials characterization skills: FIB-SEM, XRD, EDS, EBSD, TEM, EIS, FTIR.
- Programming language: Python and Java.
- Industrial skills: Cleanroom Microfabrication, Chemical Vapor Deposition, Physical Vapor Deposition, FMEA.
- Software skills: Mathematica, AutoCAD, Visio, ImageJ, LAMMPS, Microsoft Office.

WORK EXPERIENCES

Tesla, *Battery Processing Intern*, BMP Department Jun. 2021 – Jul. 2021

- Reconstructed and optimized a battery processing reuse line through equipment calibrations, process adjustments, and fault injections, which reduced two workforce counts and fulfilled the pace requirement completely.
- Identified foreign matters in battery pack using characterization skills such as SEM and Infrared Spectrum as aluminum oxides formed by aluminum powder scratched off due to friction between parts.

CATL, *Engineering Intern***,** Energy Storage Solution Department Oct. 2020 – May 2021

- Solved technical problems and provided proposals for ten foreign customers with about 2GWh energy storage projects in total, of which 250MWh became purchase orders during the internship.
- Proposed new battery rack arrangements, which lead to 1% benefits in dischargeable energy expectedly.
- Designed a black start mode, a snow roof, and a cable tray for energy storage battery racks to fulfill customers' needs.

GE Healthcare, *Data Intern*, After-sale Service Department May 2018 – Aug. 2018

- Developed executable programs using Python to automatically download and analyze thousands of data, which simplified employees' manual working process.
- Tracked and analyzed in-use x-ray tube data using Weibull++ for residual life prediction of the tubes.

RESEARCH & PROJECTS

Project: Semiconductor Microfabrication Aug. 2019 – Dec. 2019

- Microfabricated a Metal-Oxide-Semiconductor Field-Effect Transistor (MOSFET) starting from a silicon wafer in a cleanroom and conducted measurements that verified its usability.

Research at Lawrence Berkeley National Lab & UC Berkeley Jun. 2019 – Present

- **Manufacturing and Characterizing Ultra-thin LLZO Ceramic Electrolytes**
  - Manufactured ultra-thin (<100μm) LLZO ceramic electrolytes and optimized the grain size and porosity by adjusting the composition and sintering conditions, such as temperature, time, and ramp rate.
  - Characterized the surface morphology of LLZO ceramic electrolytes through SEM imaging and EBSD analysis.
  - Measured local ionic conductivities using electrochemical impedance spectroscopy (EIS) and microelectrodes to study how crystal orientations affect ionic conductivities.
  - Conducted FIB lift-out and ion-milling for TEM sample preparation.
- **Mechanical Modeling and Characterization of Composite Cathodes of NCM/LPS Solid-State Batteries**
  Publication: Shi, Tan & Zhang, Yaqian & Tu, Qingsong & **Wang, Yuhao** & Scott, M. & Ceder, Gerbrand. (2020). *Characterization of mechanical degradation in an all-solid-state battery cathode*. Journal of Materials Chemistry A.
  - Performed FIB-SEM tomography to characterize morphology changes in the composite cathode (NCM/LPS) due to charging cycles and quantified the increasing void volume through cycles.
  - Segmented the sliced images obtained from FIB-SEM based on phases using machine learning plugin in the ImageJ software and reconstructed them into 3D volume using the Dragonfly software.
  - Explored in-situ SEM setup to study morphology changes and Li dendrite growth in the composite cathode.
- **Plasmon Surface Energy of Gold Nanoparticles**
  - Wrote Python scripts to process EELS spectrum images to study the plasmon surface energy of Au nanoparticles using the deconvolution method, which showed reasonable trends according to simulations.