

# Carla J. Becker

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Full resume available at:



## SKILLS & PROFICIENCIES

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Program management, early-stage project ramping, product engineering, process development — Machine-learning, optimization, numerical methods, controls engineering — Bring-up, operation, and maintenance of manufacturing machinery, analytical instrumentation, and electronic equipment — Python, MATLAB, C, LaTeX, Javascript, Unix, Bash

## RESEARCH & INDUSTRY EXPERIENCE

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- **Senior Product Engineer**, Sakuu Corporation *May 2018 - May 2022*
  - **Program Management** — Single-handedly managed, envisioned, and guided development of a browser-based integrated data management, machine learning, and advanced battery analytics system. Project had a \$300,000 budget and lasted 1.5 years. — Drafted statements of work and consulting agreements. Developed all company safety procedures and SOPs.
  - **Product Engineering** — Experience with powder milling, coin/pouch cell assembly, tape casting, slurry preparation, battery assembly and test, and powder bed 3D printing. — Design of experiment, process development, contract manufacturing. — Point-of-contact for fixing/repairing malfunctioning analytical instrumentation.
  - **People Management** — Daily managed a 10-person team of technicians and associate engineers on the R&D lab floor. — Managed 4 different interns to complete their own independent projects.
  - **Early-stage Project Ramping** — Developed strategy to grow a battery modeling and simulation business unit. Interviewed potential candidates and evaluated commercial finite element software. Defined 5-year scope, objectives, and success metrics. — Onboarded and trained all non-executive, technical staff on techniques, procedures, machinery, instrumentation, and theory until the startup headcount reached 50.
- **Business Operations Management Intern**, Intel Corporation *June 2022 - May 2023*
  - Streamlined hiring and finance operations within the Developer Software Engineering group by automating 1) headcount reporting, 2) tracking of organization wide OKRs from JIRA data, and 3) generation of new job requisitions using Python Selenium, the PowerBI Javascript API, and Microsoft Power Automate.
- **Graduate Student Researcher**, University of California Berkeley *May 2022 - Present*
  - **Browser App for Composites Discovery, [The Materials Project](#)** — Built an app to recommend composite material components based on user-defined properties for an ultimate material. Public GitHub repo [here](#). — Developed an object-oriented framework in Python which uses, and will be integrated into, the Materials Project API. — Tested a suite of optimization techniques and developed faster versions in C and Cython.
  - **Comparison of Model Predictive Control and Robust Optimization for the Optimal Power Flow Problem** — Modeled power flow in an adapted IEEE 39-bus test system with wind, solar, battery storage, and diesel generation, minimizing the total amount of diesel used over a time horizon. — Used real generation/consumption data. Public GitHub repo [here](#).
  - **Fellow at the AI Institute for Next-Generation Food Systems** — Developed an extensible coupled, nonlinear ODE model for growth of a general crop. Public GitHub repo [here](#). — Developed a ray tracing solver for a digital twin of an indoor farm, optimizing LED configuration for maximum light absorption. Resulted in [publication](#). Public GitHub repo [here](#).
- **Student Assistant, College of Engineering**, University of California Berkeley *May 2022 - Present*
  - **Outstanding Graduate Student Instructor 2024**, Modeling and Simulation of Advanced Manufacturing Processes.
  - **Backend Software Development, Capstone Connect** — Automated optimal matching based on mutual ranking between industry sponsors and Masters of Engineering students, who must complete a capstone project to graduate, and automated all document production and email communication. — All work done in Google AppScript (Javascript).
  - **Head Student Staff Assistant, [Dubai Electricity and Water Authority](#) (DEWA)** — Administered the engineering certificate program for students at DEWA through the UC Berkeley Extension. Organized student enrollment, grading, forums, and course resources. — Managed many stakeholders: the program manager and program director from DEWA, the UC Berkeley registrar, staff from the UC Berkeley Extension office, professors, and teaching assistants.

## EDUCATION

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- **University of California Berkeley**  
*PhD Student, Mechanical Engineering; Expected: May 2026*  
*M.S., Materials Science & Engineering; Earned: May 2022*
- **Harvey Mudd College**  
*B.S. Physics, B.S. Chemistry; Earned: May 2018*

## RELEVANT & PLANNED GRADUATE COURSEWORK

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Finite Element Method · Numerical Solutions of ODEs/PDEs · State Estimation and Kalman Filtering · Model Predictive Control · Data Science for Energy · Materials Science of Energy Conversion and Storage · Power Electronics · Semiconductor Manufacturing - Bring-up (Spring 2025) · Semiconductor Manufacturing - Tape-out (Fall 2025)