Ryan Carpio-Brown

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EDUCATION

University of California, Berkeley Aug 2025 – May 2026
Master of Engineering in Material Science & Engineering GPA: 3.85/4.00

- **Coursework**: Twin Modeling of Advanced Manufacturing Processes, Scanning Electron Microscopy

University of Texas at Austin Aug 2021 – May 2025
Bachelor of Science in Mechanical Engineering

- **Coursework**: Nanomaterials for Sustainable Energy, Connected Autonomous Electric Vehicles
- **Awards:** Texas Space Grant Consortium Medalist, 4x University Honors, 1st in BME Design Contest
- **Student Orgs:** Longhorn Racing Solar (Electromechanical Lead), Texas Sound, Habitat for Humanity

EXPERIENCE

Corning – *Forming Process Engineering Intern; Corning, NY* Jun – Aug 2024

- Spearheaded **industrial automation** initiative that secured **$2M** in capital investment, achieved a 75% reduction in labor costs, and delivered a full ROI in **<2** years through data-backed proposals.
- Defined handling limits for robotic arms and improved **DFM** through tolerance stack-up analysis, Finite Element Analysis, and process validation; collaborated with industrial design and quality control teams.
- Built **Python**-based statistical models to uncover deviations in upstream manufacturing activity, enabling features in downstream processes that corrected cycle time variance by **30%** and enhancing line stability.

Qorvo – *Mechanical Engineering Intern (Research & Development); Richardson, TX* May – Aug 2023

- Planned and executed **DOE** process investigations to integrate a new laser ablation step into **RF** device assembly, iterating across **32** experimental trials to optimize beam quality parameters and processing time.
- Led SEM-based **root-cause analysis** on **20+** failed SiP units in high-volume consumer electronics hardware, reducing total yield loss by **5%** and informed design-for-reliability improvements.
- Invented and vetted custom fixture design drawings in **SolidWorks** and AutoCAD with OEM specs; authored comprehensive **SOPs**, maintenance guidelines, and safety documentation to support future reliability.

PROJECTS

Genetic Algorithms for Triply Periodic Minimal Surface Structures – *Gu Group* Aug 2025 – Present

- Developing "TPMS" Lattice structures as novel cooling solutions for high power computer systems at LBNL.
- Designing Ansys simulation workflows to expand testing capabilities and quickly evaluate mesh efficacy.
- Manufacturing TPMS lattices through electroless Ni plating, Cu electroplating from 3D printed ABS scaffolds.

Greener Chemistry for Plastics in PCB Substrates – *Berkeley Center for Green Chemistry* Aug 2025 – Present

- Identifying health and environmental hazards posed by thermoset resins used in circuit board construction.
- Building comparative thermal, electrical, and mechanical performance models to benchmark greener plastics.
- Conducting composite-level process studies to assess glass-fiber/Cu foil adhesion and lifetime stability.

Formula Sun – *Longhorn Racing Solar* Aug 2021 – Jun 2024

- Designed, constructed, and tested composite support structures housing vital high voltage electronics within the frame of a full-size solar car. Collaborated with machinists and electrical engineers throughout the season.
- Managed the electromechanical team for 2 years, delegating aspects of the build process amongst a group of 9 people from varying backgrounds. Recruited, onboarded, and trained 6 of 9 on the electromechanical system.

SKILLS

Mechanical Design: Siemens NX, SolidWorks, ANSYS Workbench, FEA, DFM, GD&T, Python, MATLAB, Drawings
Manufacturing: CNC Lathe & Mill, Water Jet, Composites, Plasma Cutting, SMT Assembly, Failure Analysis
Project Management: Cross-Team Coordination, Data Science (JMP, Excel, etc.), High volume process optimization