Caden Kraft

cadenkraft@gmail.com • (563) 340-5774 • cadenkraft.com

INTERNSHIPS

TESLA **Palo Alto, CA**
Mechanical Design Engineer *May 2025 – Aug 2025*
- Self-led redesign of high voltage devices in battery of upcoming vehicles eliminating all non-automatable bolted joints
- Designed and validated novel bus bar insulation strategy that is lighter, denser, and 45% cheaper than original strategy
- Engineered EMC cover with automated install and ran peel and HTHE tests to validate laser weld required by the design

SPACEX **Hawthorne, CA**
Responsible Engineer *May 2024 – Aug 2024*
- Identified deficiencies in Dragon payload latch mechanism qualification testing and developed a new static-load test campaign that not only represented a closer flight-like condition but also increased the mechanism's capability by 55%, solving negative margin on the upcoming Alpha Magnetic Spectrometer upgrade mission
- Designed static load fixture using NX that was reconfigurable to represent different payloads. Created automated data analysis script in MATLAB allowing for rapid testing of future payloads
- Conducted fatigue qualification testing of new Dragon solar module adhesive saving $560k per year in scrap material

HONEYWELL FM&T **Kansas City, MO**
Product Engineer *May 2023 – Aug 2023*
- Interpreted air particle data using compatibility analysis in MATLAB to determine design specifications of a cleanroom
- Engineered fixtures using SolidWorks that both constrained and electrically connected components to a plasma chamber
- Created coupons of new plastic and composite materials using compression molding to be validated with tensile testing

TESLA **Palo Alto, CA**
Mechanical Design Engineer *Jan 2023 – May 2023*
- Created fixtures using Catia to validate high voltage sliding connectors for the battery on next generation Tesla vehicles
- Self-led development of alternative connector that retained all performance requirements, decreased part count from 7 to 2, eliminated all welding operations, and saves $42 million per year
- Conceived a design for a flexure to resolve a high tolerance stack between low voltage blind mate connectors. Created injection molded prototypes and an insertion force fixture to characterize performance when connectors are misaligned

HUSCO AUTOMOTIVE **Waukesha, WI**
Mechanical Design Engineer *May 2022 – Aug 2022*
- Determined the root cause and solution of a 6+ year yield issue where hysteresis was found in batches of solenoid valves
- Designed crimping fixture using SolidWorks, Ansys Mechanical, and PTC Creo capable of retroactively reworking solenoids from lost yield saving $120k in product
- Created magnetic model of the solenoid using Ansys Maxwell and MATLAB incorporating ideal design parameters and empirical testing data to correlate the model. Leveraged the model to generatively iterate on the solenoid geometry solving the issue and saving $75k per year

KONBINI TECHNOLOGIES **Singapore, SG**
Electro-Mechanical Engineer *Aug 2020 – Apr 2021*
- Developed an E-payment device capable of converting traditional coin-based washing machines to contactless payment
- Designed device in SolidWorks that toollessly integrated with machines and allowed users to utilize E-Payment options
- Devices were tested, manufactured, and successfully deployed to over 200 laundry machines in three different countries

MOTIONAL **Singapore, SG**
Mechanical Design Engineer *Jan 2020 – May 2020*
- Developed an autonomous testing vehicle used for simulating pedestrian movement to train fully autonomous vehicles
- Designed testing vehicle using SolidWorks and Ansys to perform finite element analysis on the custom suspension system and gearbox. The vehicle was evaluated to withstand 1.5 tons

EDUCATION

IOWA STATE UNIVERSITY **Ames, IA**
Mechanical Engineering Senior • 3.89 GPA *Aug 2021 – Dec 2025*

PROJECTS AND AWARDS

PRISUM SOLAR CAR CLUB AT ISU **Ames, IA**
Mechanical Director *Aug 2021 – Aug 2024*
- Managed a 45+ member mechanical subteam through coordinating projects, suppliers, and sponsors
- Engineered new battery pack high voltage system utilizing machined bus bars that consolidate all contactors, fuses, and current sensors without the use of cables, reducing safety risks and time spent on high voltage maintenance

RELEVANT SKILLS

Ansys | 3D Printing (FDM, SLA, SLS) | Siemens NX | CATIA | SolidWorks | MATLAB | Python | Altium Designer | KiCad