

KIVANC YILDIZ

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PROFESSIONAL SUMMARY

Staff-level mechanical engineer with a track record of taking complex, multi-disciplinary hardware from concept through prototype and into production at Tesla and Ford. Proven across mechanical, electrical, and thermal domains with hands-on experience building and instrumenting hardware, writing system specifications, and owning cross-functional development. Builds automation tooling in Python to accelerate hardware design workflows.

EXPERIENCE

Ford Motor Company

Palo Alto, California

Staff Motor Mechanical Design Engineer - Technical Lead

Oct 2024 - Present

- Developing a Python-driven CAD automation tool to generate and iterate stator hairpin geometries, enabling rapid design exploration during ongoing prototype and manufacturing development
- Led development of a heavy rare earth (HRE)-free motor platform eliminating dependency on volatile magnet supply chains while achieving performance parity with legacy designs validated through FEA
- Designed a \$2M stator manufacturing pilot line to internalize development capability, enabling rapid prototype iteration, cost learning, and manufacturing readiness for future programs
- Reduced component cost by 21% through supplier-facing DFM initiatives, first-principles analysis of part processing, and introduction of novel manufacturing methods
- Authored inspection plans for critical to function (CTF) features, resulting in zero fit failures during prototype builds and enabled statistical process control (SPC) at the supplier for mass production
- Directed the mechanical integration of the motor's thermal management in partnership with the thermal analysis team by engineering the stator fin geometry and the rotor cooling paths to avoid thermal throttling

Tesla, Inc.

Palo Alto, California

Senior Motor Mechanical Design Engineer - Lead Rotor Engineer

Dec 2022 - Sep 2024

- Owned end-to-end rotor design for the Cybertruck, Robotaxi, and Model 3/Y refresh, directing all structural validation while collaborating with electromagnetics, thermal, and motor controls teams
- Applied topology optimization to cut mass by 15% while exceeding power density and fatigue life requirements
- Eliminated a source of NVH by directing an on-site supplier process change, traced issue to inadequate spline gear metrology and mandated adoption of temperature controlled inspection rooms
- Executed rapid, hands-on prototyping and failure analysis, personally building and instrumenting Alpha units in the lab to validate FEA models and perform root cause analysis on test failures to inform design revisions

Motor Mechanical Design Engineer

Feb 2020 - Dec 2022

- Directly Responsible Engineer for injection molded plastic phase junction for Model 3/Y and Cybertruck, implementing a design change that eliminated an assembly risk on the assembly line
- Developed and deployed a fully automated, Python based high voltage tester to detect partial discharge failures in stators. The system replaced a manual process, eliminating human error and increasing data collection by 300%

EDUCATION

University of Ottawa - Bachelor of Applied Science, Mechanical Engineering

Jun 2019

SKILLS

Mechanical Design: Mechanism & Fit Design, DFM/DFA, Geometric Dimensioning & Tolerancing (GD&T), Statistical Tolerance Analysis, Topology Optimization, Structural & Fatigue Analysis, Thermal Management

CAD & CAE Software: Python, CATIA 3DExperience, ANSYS Workbench, Solidworks, Minitab