Lauren Fitzgerald

Staff Mechanical Engineer

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SUMMARY

Staff mechanical engineer with 11 years designing semiconductor process chambers, wafer handling robots and precision machined parts. Sets the mechanical design direction for chamber platforms, runs thermal analysis and FEA in ANSYS, and drives tolerance analysis and GD&T standards across NX and SolidWorks teams of up to 9 engineers.

SKILLS

- **NX**
- **SolidWorks**
- **ANSYS**
- **FEA**
- **Thermal Analysis**
- **Heat Transfer**
- **Tolerance Analysis**
- **GD&T**
- **Machining**
- **Manufacturing Processes**

EXPERIENCE

Staff Mechanical Engineer 02/2022 - Present
Sonoran Wafer Systems Chandler, AZ

Technical lead for the mechanical design of a 300 mm etch chamber platform shipped to chip fabs in the US and Asia.

- Lead mechanical architecture of a 300 mm etch chamber, guiding 9 engineers from concept to **40** shipped tools.
- Model heat transfer in heaters and chamber walls with ANSYS thermal analysis, holding wafer temperature within 1.5 degrees C.
- Set tolerance analysis and GD&T rules for 2,000-part assemblies in NX, cutting shims on the assembly floor by 60%.
- Partner with machining and coating suppliers on 14 ceramic and aluminum parts, lowering cost per chamber by $48,000.

Senior Mechanical Engineer 07/2018 - 01/2022
Desert Peak Automation Tempe, AZ

Designed vacuum wafer handling robots and load ports for semiconductor tool makers.

- Designed a vacuum robot arm in SolidWorks that raised wafer throughput by **18%** over the prior model.
- Ran FEA and modal analysis on robot links, moving the first natural frequency above 120 Hz.
- Led 30 design reviews and DFMEA sessions with manufacturing, quality and field service teams.
- Cut robot arm part count from 140 to 95 by merging machined brackets, lowering build cost by 20%.

Mechanical Engineer 06/2015 - 06/2018
Saguaro Precision Machining Phoenix, AZ

Engineer at a precision machine shop, reviewing manufacturing processes for aerospace and semiconductor customers.

- Reviewed **500+** customer drawings a year for machining feasibility and GD&T errors before quoting.
- Designed 60 fixtures in SolidWorks that cut setup time on 5-axis mills by 30%.
- Wrote first-article inspection plans and CMM programs for 120 new parts.
- Trained 6 machinists to read GD&T callouts and datum schemes on customer drawings.

EDUCATION

Bachelor of Science 05/2015
Arizona State University Tempe, AZ
Mechanical Engineering

CERTIFICATES

GDTP Senior Level Certification
ASME
2020