SAI MANISH HARISH
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WORK EXPERIENCE

ASM AMERICA, INC. ALD ENGINEERING GROUP PHOENIX, AZ
Mechanical Engineer II September 2024 - Present

- Leading engineering efforts for precursor delivery and exhaust sub-modules for NPI of next-gen ALD module
  - Design and simulate thermal, and flow systems for precise process requirements
  - Design HW for wide range process windows to enable tunability and improve wafer performance
  - Design for configurability and commonality to reduce total number of parts and simplify BOMs
  - Improved GtG by >30 % with design for optimized installation and serviceability sequences
  - SEMI S30 compliant design for energetic materials, leak detection and fire suppression
  - Utilized DFX principles to enable early stage and reliabilty testing for module HVM readiness
  - Ensured defectivity monitoring using sensors and rightly called out specs for part manufacturing
- Worked on CIPs to ensure continued on wafer performance improvements on existing tool base.
- Strategized cost reduction efforts with HW and design changes accounting to 4% reduction of tool cost.
- P&ID development for system level integration of sub-modules.
- 2 patents in the process of being filed within the next 1-2 months. More ideas are under consideration.
- Applied GD&T for precise part manufacturing and complex assemblies with multiple tolerance stacks.
- Support installation and troubleshooting of modules in customer semiconductor cleanroom fabs.
- SEED drawing package development for module enablement at customer sites.

SENSATA TECHNOLOGIES INC. ATTLEBORO, MA
Mechanical Engineering Intern June 2023 - August 2023

- Designed and developed Temperature Response Validation System for AC Temperature sensor.
- Built convective fluid flow system through a test sensor manifold and develop temperature ramp system for high and low side fluid exchange to mimic an actual AC refrigeration cycle.
- Conducted calculations to select a centrifugal pump based on required fluid flow rate.
- Custom design of thermal chamber for under-hood temperature, reducing cost by 80% and size by 90%.
- Implemented Manifold Design for sensor and thermocouples with ideal probe depth for precise results.
- Performed material selection to diminish thermal heat losses. Pushed heat losses to less than 2%.
- Documented process control plans and BOM's for future experimentation and implementation.

INDIAN INSTITUTE OF SCIENCE BANGALORE, INDIA
Mechanical Design and Research Intern February 2022 - May 2022

- Researched and devised low-cost, portable Tensile testing machine for micro-scale ductile material characterization, decreasing cost by 35% compared to industrial standard.
- Achieved tensile force of 10 kN achieving 50% greater force than industrial competitors for micro-scale.
- Fulfilled GD&T standard drawings for all parts to be signed-off for manufacturing.
- Built and accomplished Thermo Mechanical Analysis and Bending tests on High-temperature hardness testing machine at microscale with ASTM standards in vacuum and inert chamber.

EDUCATION

BOSTON UNIVERSITY BOSTON, MA
Master of Science, Mechanical Engineering, GPA: 3.83/4.00 January 2024

MANIPAL INSTITUTE OF TECHNOLOGY MANIPAL, INDIA
Bachelor of Technology, Mechanical Engineering, GPA: 3.34/4.00 July 2022

LEADERSHIP ACTIVITIES

Team Lead-Silicide ALD, Precursor Delivery & Exhaust modules at ASM September 2025 - Present
HW development for metal contacts utilizing thermal ALD process

Technical Head for ASME Manipal July 2020 - August 2021
Led team of 35+ to compete at Cozmoclench, IAM3D, HPVC competition of ASME

Lead Mechanical Design Member at Project Manas Manipal January 2019 - January 2021
Competed in IGVC 2019, Mahindra Rise Prize, and AUVSI SUAS 2020 in collaboration of 50+ students.

TECHNICAL SKILLS

Design: Mechanical Design, CREO, SolidWorks, NX, Autocad, DOE, GD&T, DFMA, DFMEA

Simulation: Ansys(Structural, CFD, Thermal, APDL), Matlab, Design Builder