VARAD PRAMOD LAD

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EDUCATION

Master of Science in Mechanical Engineering **Graduating May 2024**
Arizona State University, Tempe, Arizona

Bachelor of Technology in Mechanical Engineering, Minor: Design **May 2022**
Sanjay Ghodawat University, India

TECHNICAL SKILLS

Design and Modeling Tools: Autodesk Revit, CATIA, SolidWorks, AutoCAD, ANSYS (FEA), Creo, Fusion 360, Arduino, Siemens NX, eQuest

Programming and Analysis tools: Python, MATLAB, Arduino, PLC, HMI, CNC coding, G code, SAP HANA, JMP

WORK EXPERIENCE

Rayn Innovation, USA: Research and Development, Mechanical Process Engineer **Jan 2024 – Present**

Thin Film Process Engineering:

- Conducted thorough analyses using SEM, TEM, XDR, and UV-Vis Spectroscopy to characterize thin films and executed experiments to produce thin films using spin-spray coating, electrodeposition, and electroless aqueous methods
- Coordinated **ALD** experiments, contributing to developing a new thin film coating process including development in **PVD** and **CVD** with more precise uniform coating and spin coating experiments on AZO films used in solar cells

Marketech International Corporation, USA: Mechanical Engineer Intern, Project: TSMC Fab 21 **Jun 2023 – Aug 2023**

Tool Hookup – Interconnect (Field Service Engineer):

- Worked with the Tool Hookup - Interconnect team on **TSMC FAB 21** and assisted the superintendent in quality inspection of the semiconductor tools in ME, QA/QC, and Lithography process teams along with providing technical support
- Installed and troubleshot semiconductor tools in compliance with **OSHA**, **ASME, ASTM, NFPA, and IMC standards**, ensuring project safety and quality; strictly followed **cleanroom protocols** by wearing PPE and completing required gowning procedures

BIM Modeler:

- Assisted the Building Information Modeling (BIM) team in designing electrical and HVAC system models for Fab 21 cleanroom facilities and levels throughout the fab using **Autodesk Revit**
- Reviewed design specifications and developed comprehensive design packages that included the construction of electrical and HVAC systems, ensuring smooth coordination between different teams involved in the project

Material and Warehouse Management:

- Utilized FTA, implemented a real-time tracking system to optimize material flow, and documented the shipment of over **300 semiconductor tools** from Taiwan, ensuring accurate logistics transparency and maintaining detailed inventory records

NASA, USA: L'SPACE Project Specialist **Aug 2022 – Dec 2022**

- Operated as project inspector for patent projects and developed project proposals with NASA Marshall Chief Technologist
- Utilized **Siemens NX** to create CAD design models and identified KPP (Key Performance Parameter) to optimize quantitative data

Chemtech System Marketing, India: Mechanical Engineer **Jun 2021 – May 2022**

Manufacturing, Product Design and Test:

- Performed **root cause analysis** and re-engineered the angles of cutting blade, used high-volume manufacturing processes to improve the cutting operation by 80%; launched new cane-cutting knives by modifying their design using **SolidWorks**

Production Quality Management:

- Led a team of 6 engineers to analyze material and tools operated during production processes and utilized **FMEA** to analyze defects.
- Applied **Lean Six Sigma** methodology principles to streamline quality control procedures, resulting in a 24% decrease in operational costs, increased profit margin, and supply chain efficiency

PROJECTS

Deposition Rate Optimization for Semiconductor Materials **Aug 2023 – Dec 2023**

- Increased semiconductor deposition rate by 32% from 50 to 65.24 via implementing **Bayesian optimization** techniques for parameter tuning in **Python**; reduced manufacturing time per wafer by over 30% compared to conventional optimization methods

Computation Fluid Dynamics using ANSYS Fluent **Aug 2023 – Dec 2023**

- Designed and executed simulations of **CFD** and heat transfer analysis leveraging multiphase modeling, external aerodynamics, and transient instabilities using **ANSYS Fluent,** involving turbulent mixing, vortex dynamics, surface wetting, compressible flows

Optimizing Factors & Effects in Pour-Over Coffee Brewing with Design of Experiment **Aug 2022 – Nov 2022**

- Considered a 2k factorial design of **DOE** and ran an experimental design comparison using **JMP** software and conducted taste tests survey to identify critical response variables, maximizing the subjective appeal of coffee for customers

Formula SAE SUPRA, India: Head of Chassis Team **Aug 2020 – June 2021**

- Led a team of 25 students to design and model a Formula-1 car using **CATIA** and performed finite element analysis **(FEA)** in **ANSYS**; optimized the chassis of a Formula-1 car and its components to satisfy a 280-kilogram weight requirement