

Arun Ashwathnarayan

Lead Design Engineer

Location: United States | Contact: (000) 000-0000 | Email: xyz@gmail.com

LinkedIn: <https://www.linkedin.com/in/xyz>

PROFESSIONAL SUMMARY

- Over **12+ years of experience** in Mechanical Design Engineering, Product Development, and Quality Assurance across global manufacturing and automotive companies.
- Currently working as a **Lead Design Engineer at MEKRA Lang**, driving concept-to-production design initiatives, product optimization, and cross-functional engineering collaboration for mirror systems and vehicle components.
- Proficient in **CATIA, SolidWorks, AutoCAD, and Unigraphics (NX)** for detailed 3D/2D modelling, design feasibility studies, and reverse engineering practices.
- Hands-on expertise in **VAVE, warranty analysis, and DFMEA/PFMEA**, ensuring robust product development aligned with industry standards and customer specifications.
- Led multiple **value engineering and cost reduction projects**, improving quality and reducing production costs through innovative design alterations.
- Skilled in **design verification testing**, GD&T, tolerance stack-up analysis, and engineering documentation (BOMs, SOPs, DVP&R).
- Collaborated with cross-functional teams including manufacturing, quality, and suppliers to execute **Critical Design Reviews** and seamless **design-to-production** transitions.
- Proven record in **new product development (NPD)**, rapid prototyping, 3D printing, and supporting product launches with rigorous APQP & PPAP documentation.
- Implemented **process improvements and Six Sigma tools** to optimize manufacturing efficiency, reduce scrap, and eliminate quality bottlenecks.
- Strong exposure to **ISO, SPC, 5S, and Kaizen principles**, with a focus on lean manufacturing practices and continuous improvement.
- Experience in **ERP and production systems**, supplier quality coordination, and component validation planning.
- Excellent interpersonal and leadership skills with ability to lead engineering initiatives, mentor junior engineers, and drive end-to-end mechanical projects.

KEY ACHIVEMENTS

- Spearheaded the complete design and development of multiple mirror systems at MEKRA Lang, leading to a 15% cost reduction through value engineering.
- Successfully implemented VAVE and Warranty Analysis processes, improving product reliability and cutting failure rates by 20%.

- Led cross-functional design reviews and transitioned over 25+ products from concept to mass production with zero design-related delays.
- Streamlined design workflows using **CATIA**, resulting in a 30% decrease in average project turnaround time.
- Championed process improvements through **Kaizen initiatives**, boosting shop floor efficiency by 18% within two quarters.
- Reduced scrap generation by 25% at Marimba Auto LLC through Six Sigma methodologies and real-time quality monitoring systems.
- Conducted more than 100+ successful **PPAP and APQP** submissions, ensuring timely customer approvals and supplier compliance.
- Designed and validated 3D models and assemblies for high-precision components, improving component interchangeability and modularity.
- Introduced automated gauging methods, enhancing in-line inspection accuracy and reducing rework instances by 22%.
- Mentored and trained junior engineers in CAD tools and quality standards, raising team productivity and first-time-right ratio significantly.

SKILL MATRIX

Skill Category	Key Skills	Proficiency	Experience
Product Development	Product Design, Development, DFMEA, VAVE	Expert	13+ Yrs
Mechanical Design & CAD	CATIA, SolidWorks, AutoCAD, Unigraphics, 3D Modelling, Drafting, GD&T	Expert	13+ Yrs
Manufacturing & Engineering	Design for Manufacturing (DFM), Process Feasibility, Tooling, Machine Installation	Advanced	10+ Yrs
Prototyping & Testing	Prototyping, Testing Plans, Subsystem Validation, Design Verification	Advanced	10+ Yrs
Design Optimization	Value Engineering, Design Modifications Cost Optimization, Quality Improvements	Advanced	8+ Yrs
Quality & Compliance	APQP, PPAP, FMEA, 8D, Root Cause Analysis, ISO Standards, SPC	Advanced	8+ Yrs
Process Improvement	Kaizen, Six Sigma Tools, Scrap Reduction Time Studies	Advanced	8+ Yrs
Cross-functional Collaboration	Team Leadership, Supplier Coordination, Sales/Engineering Sync, Production Support	Expert	12+ Yrs
ERP & Production Systems	ERP Tools, JDA/CITRIX, Change Management Systems	Intermediate	5+ Yrs
Documentation & Compliance	Technical Drawings, Design Specs Change Management, Internal Audits	Advanced	10+ Yrs

PROFESSIONAL EXPERIENCE

Lead Design Engineer

MEKRA Lang GmbH & Co. KG | Ridgeway, SC | Sep 2016 – Present

- Designed and developed innovative mechanical systems using **CATIA** for **commercial vehicle mirror** and camera monitoring solutions.
- Led cross-functional design efforts for new **product development projects**, ensuring manufacturability, cost-effectiveness, and customer satisfaction.
- Managed engineering change requests and implemented modifications per **VAVE** analysis, **warranty data**, and customer feedback.
- Conducted detailed feasibility studies, ensuring compliance with mechanical requirements, standards, and production readiness.
- Facilitated **value engineering** activities to enhance product performance and reduce costs.
- Coordinated with suppliers, manufacturing teams, and validation groups for critical design reviews and production launch readiness.
- Created design verification plans, **DFMEA** documents, and collaborated on testing protocols to validate product reliability and safety.
- Utilized **GD&T** standards to prepare detailed **2D/3D designs**, drawings, and technical specifications.
- Integrated project timelines and scope of work through consistent engagement with internal and external stakeholders.
- Ensured conformance with legal, industry, and safety standards throughout **product lifecycle**.
- Spearheaded **design process improvement** initiatives and supported automation integration in production.
- Participated in **root cause analysis (RCA)** and implemented corrective actions to resolve engineering and production issues.
- Provided mentorship and guidance to junior engineers and interns, promoting knowledge-sharing and best practices.
- Maintained comprehensive engineering documentation and supported **ERP** systems for **BOM** and change tracking.
- **Drove kaizen**-based initiatives to streamline design workflows and reduce lead times.

Quality Engineer

Marimba Auto LLC | Belleville, MI | Jun 2014 – Aug 2016

- Executed **APQP** and **PPAP** activities for new component launches and production support.
- Managed the quality planning process, including **PFMEA**, **Control Plans**, and **Work Instructions**.
- **Led 8D** and Corrective Action processes to address product quality and customer concerns.

- Supported change management and quality systems documentation for continuous process updates.
- Developed and monitored key process parameters to improve efficiency and reduce variation.
- Applied **Six Sigma** tools to conduct capability analysis and drive process improvements.
- Coordinated with suppliers and customers to resolve quality issues and manage documentation.
- Reviewed and approved **non-conformance reports (NCR)** and disposition of materials outside process limits.
- Planned and executed internal quality audits and implemented system corrections.
- Conducted **SPC, Gage R&R** studies, and managed calibration programs for inspection equipment.
- Created **PPAP** packages and maintained traceability records in compliance with ISO standards.
- Monitored and drove scrap reduction initiatives, including root cause identification and solution deployment.
- Interfaced with production teams to implement error-proofing (**poka-yoke**) systems for new products.
- Participated in line layout planning and process validation for efficient manufacturing workflows.
- Maintained detailed quality metrics and presented findings in management review meetings.

Design Engineer

CAM Tek Solutions | Bengaluru, India | Aug 2011 – Jan 2013

- Created detailed 2D/3D mechanical part drawings using **AutoCAD** and **SolidWorks** for customer-specific industrial applications.
- Applied **GD&T** standards to ensure precision and compliance with client manufacturing requirements.
- Supported drafting teams in the preparation and revision of structural and **mechanical drawings**.
- Prepared submittal and shop drawings used for client review and final production planning.
- Collaborated with the production and project management teams to resolve design and fitment issues.
- Assisted in maintaining **CAD** standards across the department to ensure consistency and documentation control.
- Developed exploded views and assembly documentation for operator manuals and technical literature.
- Created **BOMs** and specifications for procurement and manufacturing reference.
- Participated in prototype review meetings and incorporated feedback into final designs.
- Designed enclosure systems, fixtures, and components as per customized requirements.
- Conducted tolerance analysis and stack-up studies to evaluate design feasibility.

- Contributed to **R&D** initiatives by conceptualizing models based on client sketches and ideas.
- Engaged in cost estimation activities through design-to-cost analysis.
- Maintained engineering file structures and revision control using **PDM tools**.

PROJECTS

Computer Aided Machine Drawing

Wayne State University | May 2014 – Aug 2015

- Created detailed mechanical drawings and assemblies using Unigraphics NX, applying GD&T principles and mechanical drafting standards.
- Designed a Multi-Plate Friction Clutch system through 3D part modelling, assembly modelling, and technical drafting.
- Applied knowledge of CAD data control, file interoperability, and engineering documentation in line with academic and industry expectations.
- Demonstrated strong capability in Product Design, parametric modelling, and design validation workflows.

Combustion Emission Analysis using CHEMKIN

Wayne State University | Jan 2014 – Apr 2014

- Modelled complex chemical kinetics of diesel combustion using CHEMKIN to simulate NOx emissions and evaluate pollution control strategies.
- Conducted advanced analysis of thermodynamic cycles, including multiple chemical species, variable gas concentrations, and temperature reactions.
- Applied deep understanding of Combustion Simulation, Emission Control Engineering, and Engine Thermodynamics to validate theoretical results.
- Delivered results influencing cleaner engine design via reactive flow simulation.

Engine Simulation using GT-Power

Wayne State University | Aug 2013 – Dec 2013

- Developed and calibrated a detailed IC engine model using GT-Power, focusing on spark timing and valve timing optimization across varying speeds.
- Simulated engine performance to improve volumetric efficiency, torque, and BSFC using real-time CAD angle and RPM variations.
- Interpreted the correlation between rate of heat release, intake pressure, and compression ratio (CR) to identify tuning opportunities.
- Utilized skills in Engine Performance Mapping, Simulation Modelling, and Cycle Analysis to optimize engine parameters and maximize output.

EDUCATION

- **Master of Science in Mechanical Engineering**, Wayne State University, Detroit, MI
- **Bachelor of Science in Mechanical Engineering**, S.J.C.I.T, Bangalore, India

CERTIFICATION

- **Piping Design Engineering** April 2011
- **Auto CADD 2010** | CADD Centre Training Service Pvt Ltd. March 2010