HAMIDREZA DANESHSARAND

Mechanical Design Engineer | Manufacturing Excellence & Process Innovation

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PROFESSIONAL PROFILE

Results-driven Mechanical Design Engineer with 5+ years delivering measurable impact in automotive and precision manufacturing. Expert in SolidWorks, and FEA with proven success reducing costs by 30% and improving operational efficiency by 50%. Patent holder in manufacturing technology. Specialized in Lean Six Sigma, sustainable process optimization, and AI/ML applications aligned with ISO 9001/14001 standards.

Leadership: Cross-functional team collaboration • Technical mentorship • Stakeholder communication • Change management

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CORE COMPETENCIES

Design & Analysis: SolidWorks (Expert) • CATIA V5 • AutoCAD • FEA • Moldflow • GD&T • Stress Analysis
Manufacturing: Lean Manufacturing • Six Sigma Yellow Belt • CNC Programming • DFMA • SMED • Kaizen
Quality & Standards: ISO 9001/14001 • DIN Standards • SAE Standards • Root Cause Analysis
Programming & AI: Python • Machine Learning • Scikit-learn • TensorFlow • Flask • Streamlit • Git

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PROFESSIONAL EXPERIENCE

Senior Industrial Designer | ZF AG Transmissions-Charkheshgar | Sep 2022 - Present

Spearheaded design innovation and process optimization for automotive transmission systems, delivering significant cost savings and operational improvements through cross-functional collaboration.

- Engineered 50+ precision fixture components using SolidWorks and FEA, reducing component failure rate by 25%

- Designed 15+ assembly tools applying DFMA principles, cutting assembly time by 40% (2,000 man-hours annually)
- Spearheaded Six Sigma initiatives delivering $50,000 annual savings through strategic material optimization
- **Engineered and patented dual-spindle shaft preparation system (Patent Pending)**, increasing throughput by 50% and reducing cycle time from 8 to 4 minutes
- Developed ISO 9001-compliant measurement gauges, improving inspection accuracy by 35%
- Designed load testing system for S6-90 transmissions with custom flywheel (491.5 kg·m² inertia, 10.8 MJ energy capacity), validated against ISO 14396 and SAE J1349 (safety factor: 17.9)
- Mentored 8 junior engineers in CAD design and manufacturing best practices

Mechanical Engineer - Tool Designer | IBC Iran (SKF Partnership) | Apr 2020 - Sep 2022

Delivered precision engineering solutions and spearheaded process improvements for bearing manufacturing operations.

- Designed high-precision bearing tools achieving 0.001 mm tolerance specifications
- Spearheaded Root Cause Analysis initiative optimizing grease system, reducing consumption by 10 tons annually ($30,000 savings)
- Redesigned factory layout using Lean principles, improving workflow efficiency by 30%
- **Received Excellence Award for Adaptability (2020)** for maintaining production continuity during supply chain disruptions

Mechanical Design Engineer | Felezkaran Molding | Nov 2019 - Apr 2020

Specialized in injection mold design and CNC programming for high-volume polymer component manufacturing.

- Designed 8 injection molds using SolidWorks and Moldflow simulation, reducing defect rate by 18%
- Programmed CNC operations achieving 99.5% dimensional accuracy across 50+ production runs
- Optimized machining parameters and tool paths, improving efficiency by 25%

Engineering Intern | ZF AG Transmissions | Summer 2013 & 2015 (240 hours)

- Identified 5 manufacturing bottlenecks, contributing to 15% throughput improvement
- Documented standard operating procedures, reducing new operator training time by 30%

INNOVATION & PATENT

Patent: Industrial Shaft Preparation Machine with Dual-Spindle Technology

Application No. 140450140003001879 | Iranian IP Office | Filed May 2025 | Status: Pending

Invented manufacturing device featuring dual-spindle configuration, metal-polymer collet system, and hydraulic clamping. Reduces cycle time by 50%, improves precision to 0.01 mm, and enhances operator safety.

AI-Powered Tool Wear Prediction System | 2025

Developed machine learning model achieving 85% accuracy for CNC tool wear prediction using Random Forest and Gradient Boosting algorithms. Built deployment pipeline with Streamlit dashboard and Flask REST API.
Tech Stack: Python, Scikit-learn, Pandas, NumPy, Flask, Streamlit
GitHub Repository

Transmission Load Testing System | 2023-2024

Designed complete testing infrastructure for S6-90 gearboxes featuring engineered flywheel (900 mm diameter, 488.6 kg, 10.8 MJ energy). Validated against ISO 14396, SAE J1349, and DIN 51819 achieving 109% compliance.

Sustainability Project | 2020-2022

Led process optimization eliminating 10 tons of material waste annually through circular economy principles and improved manufacturing efficiency.

EDUCATION

Master of Science in Manufacturing Engineering | University of Tabriz | 2022 | GPA: 3.69/4.0
Thesis: Manufacturing and Mechanical Performance of 3D-Printed PLA Sandwich Panels Reinforced with Short Carbon Fibers

Bachelor of Science in Manufacturing Engineering | Technical University of Tabriz | 2017

CERTIFICATIONS

Technical: SOLIDWORKS 3D CAD (Dassault Systèmes, 2025) • Six Sigma Yellow Belt (Kennesaw State, 2025) • CNC Miller (Iran TVTO, 2020)

Engineering & AI: AI for Mechanical Engineers (U. Michigan, 2025) • Digital Manufacturing (U. Michigan, 2025) • Google Project Management (Google, 2025)

Programming: Python for Everybody (U. Michigan, 2025) • Meta Full-Stack Developer (2025)

LANGUAGES

English: Proficient (Equivalent to IELTS 6.5 - C1 Reading/Listening, B2 Speaking/Writing)
Swedish: Basic conversational (A2, actively developing)
Persian & Azerbaijani: Native proficiency

PROFESSIONAL INTERESTS

Renewable Energy Systems • HVAC Design • Industrial Automation & Robotics • AI/ML in Manufacturing

Community: STEM Mentor (2021-Present) - Guiding 10+ aspiring engineers in career development

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Portfolio: 50+ engineering projects | **References:** Available upon request