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Top Skills

Manufacturing Scale-up
Startup Product Development
Technology Commercialization

Languages

Punjabi (Elementary)
English (Native or Bilingual)
Urdu (Native or Bilingual)

Certifications

Speaking Confidently and Effectively
McKinsey Forward Program
Lean Six Sigma Foundations
Root Cause Analysis: Getting to the Root of Business Problems
Introduction to Geometric Dimensioning and Tolerancing

Honors-Awards

Present Around the World-Runner Up
Runner Up of Junk Art 3.0
Dramatics 1.0

Publications

A correlation among industry 4.0, additive manufacturing, and topology optimization: a state-of-the-art review

Dawar Azhar

Senior Mechanical Design Engineer | Power Electronics | Enabling Universal Electrification | Next-Gen Multiport Solid-State Transformer Technology | From Gen AI Datacenter, EV Charging, Energy Storage Systems to Microgrids

United States

Summary

Senior Mechanical Design Engineer with a track record of developing breakthrough technologies that secure major funding and generate significant market traction. I've led the engineering development of revolutionary power electronics technology from startup concept through \$20M Series A funding and tens of millions in purchase orders for M/s DG Matrix.

My specialty is transforming ambitious technical visions into commercial reality. Developed with an awesome engineering team the world's first multi-port solid-state transformer, achieving unprecedented 10x size reduction while enabling universal integration of any AC/DC energy source with any load. This breakthrough technology replaces 10-20 traditional electrical systems, dramatically simplifying power infrastructure while improving performance and reducing costs.

My technical leadership spans the full product lifecycle—from innovative thermal management and modular mechanical design through manufacturing optimization and global deployment. I've delivered complex projects 80% under budget and 3 months ahead of schedule while maintaining the technical excellence required for utility-grade applications.

I'm passionate about technologies that accelerate the global energy transition. My work enables widespread electrification by making advanced power systems compact, affordable, and deployable anywhere—from urban EV charging hubs to remote microgrids and high-density AI data centers.

Experience

Angularspring

Senior Mechanical Design Engineer & Founding Team Member

February 2025 - Present (10 months)

Lahore, Punjab, Pakistan

- Led development of world's first multi-port solid-state transformer, achieving 10x size reduction while replacing 10-20 traditional electrical systems with single integrated device for M/s DG Matrix
- Secured \$20M Series A funding from tier-1 investors including major industrial partners, validating breakthrough power electronics technology and commercial viability
- Engineered thermal management systems for 400kW power electronics achieving industry-leading density in <2m² footprint across 6 bidirectional AC/DC ports
- Reduced manufacturing costs by 35% and assembly time by 60% through Design for Manufacturing optimization while scaling from prototype to commercial production
- Generated tens of millions in purchase orders by leading product development from concept through first field deployment and commercial launch
- Co-invented multiple patent-pending innovations in power electronics packaging and modular system architecture, establishing core IP portfolio
- Developed modular mechanical platform enabling universal integration of renewable energy sources, grid power, and energy storage in single device
- Achieved 90% reduction in installation complexity through innovative mechanical design eliminating need for custom foundations and specialized equipment

Powersoft19

6 years 8 months

Senior Mechanical Design Engineer

March 2022 - February 2025 (3 years)

Lahore, Punjab, Pakistan

- Pioneered Design for Manufacturability (DFM) principles, reducing material waste by 30% and increasing repair efficiency by 80% (e.g., by reducing repair time from 10 hours to 2 hours). Led change initiatives for enhanced repairability, streamlining production and minimizing downtime.
- Spearheaded cross-functional teams to virtually identify and assemble components, fostering collaboration and driving a 20% increase in component development speed. This resulted in a time-to-market reduction of 6 months.

- Developed and implemented standardized repair procedures across teams, reducing repair times by 25% and improving component reliability by 20%. This resulted in an estimated annual cost savings of \$10K per deployment. Pioneered a novel repair method with the potential to cut repair time/cost by 40% if standardized.
- Conducted in-depth Failure Mode and Effects Analysis (FMEA) on mechanical systems, utilizing data insights to refine repair procedures and reduce costs while adhering to ISO, IEEE, and UL standards.
- Leveraged Autodesk Inventor, CATIA V5 and SolidWorks expertise to develop and validate designs for over 2000 parts. Led 100+ successful experimental validations, ensuring designs were not just feasible, but met rigorous safety and reliability standards. My expertise boosted product dependability by a staggering 10%!
- Partnered with internal teams and clients to implement design modifications, assess EOL liabilities, and optimize BOM effectivity dates, minimizing production costs while adhering to industry standards.
- Evaluated spare material assessments and analyzed the financial impact of inventory changes, collaborating with teams to strategically set BOM effectivity dates for cost reduction.

Lead Mechanical Design Engineer

July 2021 - March 2022 (9 months)

- Led a high-performance team of 10 mechanical design engineers in unlocking a paradigm shift within national grids. We spearheaded the development and delivery of a complex power flow control system, deployed across UK, Australian, and US grids.
- By implementing topology optimization techniques in the design phase, we achieved a remarkable 50% reduction in material waste.
- Through meticulously defined agile project plans, we delivered 3 prototypes and 3 pilot projects within a brisk 5-month timeframe. These successful functional tests resulted in over \$300 million in customer deals.
- Overseeing the seamless scaling of designs from prototype to full-scale production was paramount. Utilizing OODA loops (Observe, Orient, Decide, Act), RCA (Root Cause Analysis), DfR (Design for Reliability), and ALT (Accelerated Life Testing) methodologies, we maintained a stellar yield rate exceeding 90%.

Mechanical Design Engineer

July 2018 - July 2021 (3 years 1 month)

Gulberg III, Lahore, Pakistan

- Engineered advanced thermal management systems for high-performance power electronics, achieving a 30% increase in operational lifespan under extreme conditions (e.g., -40°C, solar irradiance, ice loading).
- Developed sophisticated power electronics packaging solutions compliant with ISO, IEEE, and UL standards, ensuring resilience in extreme climates and environments.
- Pioneered the use of 3D printing for rapid prototyping, accelerating the development cycle of 30+ injection-molded plastic parts by 83% (from 6 months to 1 month).

Fauji Fertilizer Company Limited
 Internee Engineer
 July 2017 - September 2017 (3 months)
 Goth Machi, Sadiqabad

Learnings from Internship:

- Dealing with different types of maintenance: preventive, corrective, predictive and routine.
 - Reading drawings and finding important part played by heat exchangers and pumps.
 - Discovering demanding role of basic engineering (welding, sheet rolling, shearing and carpentry work).
 - Observing materials and machining operations done for parts production.
 - Following five steps of job reporting to sub engineer and engineer for work done on daily basis.
- Problem identification.
 -Calling concerned departments as per issue requirement
 -Steps followed to eradicate the issue.
 -Final checking to ensure proper working.
 -And documentation of all above steps through MS Word and reporting to junior engineer and senior engineer.

Education

University of Engineering and Technology, Lahore
 Master's degree, Manufacturing Engineering · (September 2025)

University of Engineering and Technology, Lahore
 Bachelor's Degree, Mechanical Engineering · (August 2018)

Punjab College Multan

Intermediate, Pre-Medicine/Pre-Medical Studies · (2010 - 2012)

Zamir Public School Multan

SCC, Biology/Biological Sciences, General · (2006 - 2010)