

YOUSSEF HESHAM MOHAMMED NASR

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PROFESSIONAL SUMMARY

Highly technical, precise, and professional R&D Mechanical Design Engineer specializing in top-tier digital engineering solutions. Expertise in utilizing advanced CAD and FEA tools to deliver production-ready designs for international clients and corporate partners. Focused entirely on digital preparation, structural integrity validation, and Design for Manufacturing (DFM) principles to deliver flawless digital design files.

CORE COMPETENCIES & TECHNICAL SKILLS

- **Engineering Expertise:** 3D Modeling, CAD, FEA / Stress Analysis, Reverse Engineering, Design for Manufacturing (DFM), Structural Validation, Sheet Metal Nesting.
- **Specializations:** Gym Machines & Commercial Fitness Equipment, Baby Mobility & Strollers, Robotics Chassis, Medical Devices.
- **Software:** SOLIDWORKS, AutoCAD, KeyShot.
- **Certifications:** Certified SOLIDWORKS Professional (CSWP), CSWP - Sheet Metal, Certified SOLIDWORKS Associate (CSWA).

PROFESSIONAL EXPERIENCE

Contracted R&D Mechanical Design Engineer

Rebuilt Company | Jun 2025 – Present

- Spearhead the engineering and DFM of commercial fitness equipment, specializing in heavy-duty gym machines including power racks and plate-loaded hip thrust machines.
- Validate structural integrity and safety compliance by conducting rigorous FEA equivalent strain studies on welded machine frames.
- Optimize sheet metal nesting layouts for efficient and cost-effective laser-cut manufacturing, alongside creating production-ready sheet-metal brackets with full flat patterns.

Contracted Mechanical Design Engineer

ISM LTD | Aug 2025 – Present

- Provide advanced 3D CAD modeling and mechanical engineering solutions on a contract basis for specialized industrial and commercial projects.
- Deliver precise digital design files, executing rigorous DFM optimizations and structural validation to bridge the gap between concept and manufacturing.

Freelance Mechanical Design Engineer

Fiverr (Global) | Aug 2024 – Present

- Manage a global freelancing portfolio, successfully completing over 25 specialized engineering projects for international clients.
- Deliver precise 3D models, FEA simulations, and DFM optimizations across diverse sectors including robotics, medical devices, and consumer products.

FEATURED PROJECTS

- **Gym Equipment Engineering (Rebuilt):** Designed a heavy-duty power trainer rack with an integrated counterweight assist system. Engineered a plate-loaded hip thrust machine strictly tailored for commercial duty cycles.
- **Baby Mobility & Consumer Products:** Developed a complex 3-in-1 convertible mobility platform integrating a stroller, tricycle, and car seat. Engineered complex living-hinge geometry for a collapsible, folding silicone bathtub.
- **Robotics & Medical Devices:** Designed an autonomous 60 x 40 cm warehouse robot chassis featuring a scissor lift mechanism and Mecanum wheels. Engineered the OMNISTEP-B1, a hospital bed integrated with a lower-limb physical therapy carriage system.
- **Reverse Engineering:** Rebuilt a fully production-ready CAD model of a vanity mirror stand by extracting and translating physical reference geometry into digital formats.

EDUCATION

Bachelor's Degree in Mechatronics Engineering

Tanta University | Expected Graduation: 2027

- Rigorous multidisciplinary program combining mechanical design, electronics, and control systems.
- Acquired a strong academic foundation in kinematics, material science, structural analysis, and advanced engineering principles directly applicable to R&D product development.