

Miguel Castro

6519 Aspen Shores Ct, Katy, TX 77449

miguecastro048@gmail.com | (832)-728-0695 | linkedin.com/in/miguelcastro19

Professional Summary

Mechanical Engineer with 4+ years of progressive experience spanning field operations, engineering design, and system testing across marine, industrial, and oil & gas-adjacent applications. Background includes hands-on pump, compressor, and lubrication system support, combined with recent engineering ownership of hydraulic cylinders, HPUs, pedestal cranes, controls integration, surveying, and commissioning. Known for applying engineering skills, strengthening engineering drawings, BOMs, testing procedures, and cost analysis while working closely with field crews, vendors, and customers.

Education

Prairie View A&M University – Prairie View, TX

Bachelor of Science in Mechanical Engineering

December 2024

GPA: 3.20

Experience

Rio Marine Inc. – Houston, TX

January 2025 – Present

Mechanical Engineer

- Designed custom hydraulic cylinders using Autodesk Inventor, producing detailed manufacturing and assembly drawings with standardized BOMs, tolerances, and material specifications.
- Engineered hydraulic power units (HPUs) by translating customer torque requirements into cylinder force, system pressure, and required flow rates (GPM).
- Developed complete HPU assemblies, selecting pumps, motors, valves, and reservoirs to meet performance and safety requirements.
- Produced CAD drawings for hydraulic pedestal cranes, supporting new builds and system upgrades.
- Led improvements to engineering drawings, BOMs, and test procedures, reducing rework and improving first-pass testing.
- Created and updated test procedures for hydraulic cylinders, HPUs, and cranes to validate performance and reliability.
- Coordinated with vendors, supported quotes, and contributed to true cost analysis of hydraulic cranes.
- Contributed to a major TXDOT Port Aransas ferry project, supporting hydraulic system design, testing, and field commissioning.
- Conducted field inspections, surveying, and layout verification to ensure proper installation and alignment.
- Supported controls and instrumentation, gaining experience with digital and analog I/O points and alarm monitoring based on customer requirements.

Bill Spitzer & Associates – Houston, TX

March 2021 – January 2025

Field & Pump Shop Technician

- Improved the SKF Lincoln ultra-high-pressure pump overhaul program by ~60%, contributing to \$1M+ annual revenue.
- Installed lubrication systems for heavy machinery, conveyor belts, railroad based on customer's operation requirements.
- Troubleshooted, repaired, and tested grease and oil pumps used in oil & gas, refinery, and industrial applications.
- Assisted in installing ITW Performance Polymers grout for air/natural gas compressors and industrial pump skids in refineries and upstream applications.
- Assembled, wired and programmed control panels with Siemens PLC for different industrial applications.
- Constructed and installed SKF Lincoln Electric Flow Master pumps for Halliburton's fracture pump fleets.

Bill Spitzer & Associates – Houston, TX.

March 2021 – January 2025

Mechanical Engineering Intern/ Co-Op

- Developed their first CAD library by using AutoCAD and Autodesk Inventor to help create better lubrication system designs to give customers a better view of the product or package.
- Built Excel VBA engineering tools to configure metering lubrication systems for compressors.
- Supported field visits, commissioning, quoting, and system development.
- Conducted engineering studies to optimize SKF Lincoln ultra-high-pressure pump overhaul procedures.

Skills

Software: Microsoft Office, MATLAB, Simulink, C++, Python, Visual Studio Code, Mathcad, LabVIEW, JavaScript

CAD: Siemens NX, CATIA V5, SolidWorks, Autodesk Fusion 360, Inventor, AutoCAD

Analysis: Thermal Desktop, Abaqus, LS-DYNA, STAR-CCM+, ANSYS

Hardware: Drill Press, Manual & CNC Mill, Lathe, Laser Cutting, TIG, MIG, Stick Welding (Basic), PID, Fluid Components