

Jayce Rowe

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SUMMARY

Senior manufacturing mechanical engineer with eight years of experience industrializing precision electromechanical products in regulated medical device and robotic equipment environments. Leads NPI, assembly **process development**, validation, metrology, tooling, equipment specification, and **manufacturing controls** for multi axis mechanisms where tolerance accumulation, bearing preload, encoder integration, fastening, bonding, and alignment affect accuracy and reliability. Translates design intent into scalable assembly sequences, datum strategies, fixtures, inspection plans, and equipment specifications using SolidWorks, **ASME Y14.5 GD&T**, **3D tolerance stack up**, PFMEA, SPC, Cpk, DOE, and Minitab. Connects DHR, MES, PLM, BOM, MPI, and validation records with production needs. Coaches engineers and technicians while aligning R&D, Quality, regulatory, Operations, and Production around dependable launches.

EXPERIENCE

Senior Manufacturing Engineer, Precision Robotic Mechanisms

February 2023 - Present

Aperture Medical Robotics

San Jose, CA

Leads NPI and **manufacturing engineering** for multi axis robotic mechanisms, from joint assembly through integrated arm verification. Owns process development, validation, tooling, metrology, documentation, and launch readiness while coordinating R&D, Quality, regulatory, Operations, and Production.

- Led NPI assembly planning for robotic joints and integrated arms, improving launch readiness through controlled verification.
- Developed harmonic drive, **bearing preload**, encoder alignment, cable routing, and TCP verification processes for pilot builds.
- Specified metrology, smart torque tools, **alignment fixtures**, and EFT for bonding, potting, dispensing, and press fits.
- Authored MPI, DHR, MES, **validation**, and PFMEA records linking risks with inspection criteria and reaction plans.
- Applied SPC, Cpk, DOE, and Minitab studies to resolve variation before production **scale up**.
- Mentored engineers and technicians, building trusted connections across **R&D**, Quality, regulatory, Operations, and Production.

Manufacturing Engineer II, Precision Electromechanical Assemblies

June 2020 - January 2023

Vectora Surgical Technologies

Sunnyvale, CA

Industrialized precision electromechanical assemblies for surgical technology products, converting SolidWorks designs and controlled drawings into repeatable processes. Supported fixture qualification, micro assembly, failure investigation, MES and PLM changes, and cross functional production support.

- Industrialized **electromechanical assemblies** by converting SolidWorks designs and ASME Y14.5 drawings into controlled processes.
- Performed 3D tolerance stack ups for kinematic interfaces, refining fixture datums and measurement plans.
- Designed and qualified fixtures for bearing installation, controlled fastening, **bonding**, and magnification assisted **micro assembly**.
- Investigated mechanical, electrical, encoder, and **instrumentation** failures through structured root cause analysis with design partners.
- Supported **MES** and PLM changes, keeping BOMs, work instructions, inspection records, and configurations synchronized.
- Evaluated **CAN bus** and EtherCAT symptoms, separating assembly faults from communication or component issues.

Manufacturing Engineer, Robotic Capital Equipment

July 2018 - May 2020

Kinetic Precision Automation

Santa Clara, CA

Developed assembly processes for robotic capital **equipment** containing servo joints, bearings, encoders, machined structures, cabling, and motion hardware. Established tooling, inspection, process controls, pilot build methods, and technician training for low volume production.

- Developed assembly processes for servo joints, **bearings**, encoders, machined structures, cabling, and motion hardware.
- Created **SolidWorks tooling** concepts and GD&T inspection plans for interfaces requiring repeatable alignment.
- Built PFMEAs and process controls, identifying critical characteristics and in process verification needs.
- Conducted torque, fit, alignment, and measurement studies to establish capable windows before pilot builds.
- Troubleshoot tolerance, fastening, cable management, and sensor integration issues during prototype **production**.
- Trained technicians on assembly sequences, measurement practices, tooling use, and controlled documentation.

Associate Manufacturing Engineer, Motion Instruments

July 2016 - June 2018

Northstar Motion Instruments

Mountain View, CA

Supported electromechanical motion assemblies through drawing interpretation, work instruction development, fixture evaluation, process data review, issue resolution, and formal release control. Partnered with technicians and design engineers on reliable build execution.

- Supported motion assemblies using bearings, encoders, machined components, fasteners, and **cable driven mechanisms**.
- Converted drawings into assembly instructions with **tooling**, torque, inspection, and traceability requirements.
- Used SolidWorks and tolerance analysis to evaluate fixture concepts and variation sensitive interfaces.
- Collected dimensional, torque, and functional data, then summarized trends for engineering review.
- Investigated build issues with technicians and design engineers, implementing controlled process updates.

- Maintained **BOM** and work instruction changes through formal release processes.

PROJECTS

Robotic Arm Assembly Scale Up 📅 2024

Scaled a precision robotic arm assembly through datum planning, bearing preload, encoder alignment, metrology, and controlled verification. Connected process evidence with production readiness.

Micro Assembly Fixture Qualification 📅 2022

Qualified fixtures for magnification assisted assembly, controlled fastening, bonding, and alignment. Used tolerance analysis and measurement plans to support repeatable electromechanical builds.

LEADERSHIP & AWARDS

- Six Sigma Black Belt recognition, awarded 2022 for advanced process improvement capability.
- Technical leadership recognition for coaching engineers and technicians during precision robotic assembly launches.
- Cross functional partnership recognition for connecting R&D, Quality, Operations, and Production through launch decisions.

EDUCATION

Bachelor's Degree in Mechanical Engineering

2016

San Jose State University GPA: 3.5

San Jose, CA

Coursework: Manufacturing engineering, mechanical design, robotics, materials science, engineering statistics

CERTIFICATIONS

- Six Sigma Black Belt 📅 2022
- ASME Y14.5 GD&T Professional Training 📅 2021

TECHNICAL SKILLS

- **CAD and Design:** SolidWorks, ASME Y14.5 GD&T, 3D tolerance stack up
- **Process Engineering:** NPI, MPI, PFMEA, process validation
- **Statistical Methods:** SPC, Cpk, DOE, Minitab
- **Manufacturing Systems:** MES, PLM, BOM management
- **Quality Documentation:** DHR, inspection plans, reaction plans
- **Robotic Mechanisms:** Multi axis arms, kinematic chains, wrist mechanisms
- **Drive Systems:** Harmonic drives, bearing preload, cable driven mechanisms
- **Assembly Operations:** Press fits, bonding, potting, lubrication
- **Precision Tooling:** Alignment fixtures, EFT, smart torque drivers
- **Controls and Networks:** EtherCAT, CAN bus, real time motion control
- **Metrology:** Instrumentation, encoder integration, TCP verification
- **Regulated Manufacturing:** Medical devices, regulatory documentation, nonconformance support

SKILLS

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|--------------|-----------|----------------------|-------------------|
| • NPI | • Cpk | • PLM | • Harmonic Drives |
| • SolidWorks | • DOE | • DHR | • EtherCAT |
| • PFMEA | • Minitab | • GD&T | • CAN Bus |
| • SPC | • MES | • Tolerance Stack Up | |

PROFESSIONAL AFFILIATIONS

- Manufacturing engineering community participant focused on precision assembly, process control, and medical device production.
- Robotics engineering network contributor sharing practices across kinematic mechanisms, metrology, and electromechanical integration.

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST