

Emilio Nguyen

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SUMMARY

Senior Manufacturing Engineer with 9 years and 3 months supporting **precision medical machining**, regulated production, and **new part introduction**. Hands on work covers Swiss CNC, vertical milling, **high speed 5 axis machining**, CAD and CAM programming, Solidworks, Gibbs Cam, Esprit, tooling, routings, equipment qualification, and **production troubleshooting**. Converts part prints and customer requirements into capable processes that balance quality, cost, lead time, and output. Partners with machinists, operators, quality teams, production leaders, and customers on DFM, process capability, corrective action, training, quoting, and launch readiness. Experience includes ISO13485 manufacturing for robotic surgery, orthopedic, dental, and surgical instrument components. Ready to help Northlake Precision Health Systems improve machining performance and deliver reliable medical device production.

EXPERIENCE

Senior Manufacturing Engineer, Medical Device Machining

January 2023 - Present

Apex Surgical Components

Elk Grove Village, IL

Leads manufacturing engineering for precision medical components across Swiss CNC, 5 axis machining, vertical milling, assembly, cleaning, passivation, and packaging. Owns new part introduction, equipment qualification, DFM, quoting, training, and controlled process improvement within an ISO13485 production system.

- Led **Swiss CNC**, 5 axis, and vertical mill support for precision components, improving production readiness.
- Converted customer prints into routings, tool layouts, **CNC programs**, and inspection checkpoints for robotic surgery parts.
- Reduced setup variation through **root cause analysis**, tooling changes, parameter optimization, and revised work instructions.
- Qualified machining and automation equipment through acceptance criteria, trial runs, and documented capability evidence.
- Advised customers on DFM changes that improved **manufacturability**, inspection feasibility, cycle efficiency, and **lead time**.
- Estimated machining time, tooling, setup effort, materials, secondary processing, and complexity for competitive quotes.
- Created **operator training** covering setup sequence, critical dimensions, tool changes, quality checks, cleaning, and escalation.

Manufacturing Engineer II, Orthopedic and Dental Components

July 2020 - December 2022

MedAxis Precision Technologies

Buffalo Grove, IL

Managed process development for orthopedic and dental components across Swiss turning, vertical milling, and 5 axis machining. Connected CAD and CAM programming with workholding, tooling, routing, inspection, troubleshooting, and controlled transfer into volume production.

- Developed Swiss, **vertical milling**, and 5 axis processes using workholding, cutting tools, routings, and **CAD CAM**.
- Stabilized recurring runs by analyzing **cycle time**, tool wear, dimensional trends, scrap drivers, and control plans.
- Created **Solidworks drawings** and setup layouts that clarified requirements for engineering, machinists, quality, and production.
- Refined **Esprit toolpaths** by validating offsets, clearances, probing routines, and first piece results before release.
- Restored process stability through containment and **corrective action** for drift, chatter, burrs, tool failure, and fixtures.
- Transferred released parts through routings, setup instructions, quality checks, packaging requirements, and operator training.

Manufacturing Engineer, Precision Surgical Components

June 2018 - June 2020

Prairie Ridge Medical Machining

Rockford, IL

Developed machining processes for small medical and surgical components in an ISO13485 environment. Supported print interpretation, Swiss CNC, vertical milling, **Gibbs Cam programming**, qualification evidence, troubleshooting, and operator readiness for repeat production.

- Translated **prints**, tolerances, finishes, materials, and inspection needs into practical machining methods for surgical components.
- Set up Swiss CNC and **vertical milling** equipment with tool lists, offsets, setup documents, and first article checks.
- Produced **Gibbs Cam** programs and revised feeds, speeds, tool sequences, and workholding from inspection feedback.
- Investigated burrs, drift, finish defects, and fixture issues through print review, measurements, machine observations, and tool checks.
- Supported ISO13485 qualification by gathering run data, updating **controlled documents**, and coordinating approval evidence.
- Trained machinists and operators on setup discipline, print interpretation, feature control, **cleaning**, and production documentation.

Junior Manufacturing Engineer, CNC Production Support

June 2017 - May 2018

Midwest MicroFab Solutions

Aurora, IL

Supported senior engineers and machinists on small metal components while building capability in process planning, print interpretation, tooling, CAD, CAM, setup documentation, inspection, and production **problem solving**.

- Prepared **setup** sheets, tool lists, and routing updates that improved operator consistency during setup and restart.
- Used CAD and CAM tools for controlled drawing revisions, toolpath reviews, and documented machining changes.
- Collected cycle time, **tool life**, and inspection data for engineering studies on variation and downtime.
- Supported troubleshooting for burrs, dimensional drift, finish defects, and fixture issues using print and inspection records.
- Updated **operator training** and controlled work instructions with current setup steps and **quality** checks.

- Learned production **process planning** through supervised work with engineers, machinists, quality staff, and operators.

PROJECTS

Medical Device Machining Launch System 📅 2026

Created a reusable launch framework for new medical components, linking print review, DFM, routings, tool layouts, CNC programs, inspection checkpoints, training, and ISO13485 release evidence.

Five Axis Process Capability Improvement 📅 2024

Improved a high speed 5 axis machining workflow through tooling review, parameter trials, capability data, corrective action, and updated setup documentation.

LEADERSHIP & AWARDS

- Certified Manufacturing Engineer recognition, SME, 2024
- Senior Engineer promotion for medical machining leadership, Apex Surgical Components, 2023
- Process improvement recognition for controlled production support, MedAxis Precision Technologies, 2022

EDUCATION

Bachelor of Science in Mechanical Engineering

2017

Northern Illinois University GPA: 3.5

DeKalb, IL

Coursework: Manufacturing Processes, Computer Aided Design, Materials Engineering, Quality Systems

CERTIFICATIONS

- Certified Manufacturing Engineer, SME 📅 2024
- SOLIDWORKS Associate, Mechanical Design 📅 2019

TECHNICAL SKILLS

- **CNC Machining:** Swiss CNC, Vertical Milling, 5 Axis Machining
- **CAD Software:** Solidworks, CAD Drawings, Part Prints
- **CAM Software:** Gibbs Cam, Esprit, CNC Toolpaths
- **Medical Manufacturing:** Medical Devices, Surgical Instruments, Orthopedic Components
- **Quality Systems:** ISO13485, Control Plans, First Article Inspection
- **Process Engineering:** Process Development, Routing Development, Process Capability
- **Tooling Engineering:** Tool Layouts, Workholding, Cutting Tools
- **Production Improvement:** Cycle Time Reduction, Tool Life Improvement, Automation
- **Equipment Launch:** Equipment Qualification, Acceptance Criteria, Trial Runs
- **Corrective Action:** Root Cause Analysis, Corrective Action, Containment
- **Production Operations:** Machine Setup, Troubleshooting, Operator Training
- **Secondary Operations:** Assembly, Packaging, Passivation
- **Cleaning Operations:** Medical Cleaning, Cleaning Requirements, Process Documentation
- **Customer Engineering:** DFM Reviews, Print Review, Specification Review
- **Commercial Engineering:** Quoting Support, Labor Estimates, Material Estimates

SKILLS

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|--------------------|-------------------|-------------------------|---------------------------|
| • Swiss CNC | • CNC Programming | • Gibbs Cam | • Process Capability |
| • 5 Axis Machining | • CAD | • Esprit | • Equipment Qualification |
| • Vertical Milling | • CAM | • DFM | • Root Cause Analysis |
| • CNC Setup | • Solidworks | • New Part Introduction | |

PROFESSIONAL AFFILIATIONS

- Society of Manufacturing Engineers, professional member
- American Society of Mechanical Engineers, professional member
- Medical Device Manufacturing community participant

LANGUAGES

- English (Native)
- Vietnamese (Proficient)

ADDITIONAL INFORMATION

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

REFERENCES

AVAILABLE ON REQUEST