

Luis Moreno

Principal R&D Engineer, Electrophysiology Catheter Development

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STRENGTHS

- 👥 **Technical Leadership**
Led difficult catheter decisions with engineers and partners, and teams gained confidence from clear technical direction.
- ♥️ **Clinical Translation**
Connected clinical needs with practical prototypes, and early concepts became clearer through direct engineering discussion.
- 💡 **Problem Solving**
Used focused experiments to investigate failures, giving project teams evidence instead of assumptions during reviews.
- 🔧 **Cross Functional Work**
Built alignment across quality, regulatory, manufacturing, and clinical groups when priorities pulled in different directions.
- 🎓 **Mentoring**
Coached junior engineers through design reviews and documentation, becoming a trusted resource for hard technical questions.

SKILLS

Medical device R&D

Electrophysiology

Catheter development

Design validation

Process development

Risk assessment

Regulatory compliance

Miniaturization

Advanced manufacturing

SolidWorks AutoCAD Minitab

Project management

SUMMARY

Principal R&D engineer with 12 years of medical device development experience across **electrophysiology catheters**, **electromagnetically navigated devices**, miniaturized components, **flexible electronics**, advanced materials, and manufacturing transfer. Leads complex programs from feasibility through prototype architecture, design validation, process development, regulatory documentation, commercialization readiness, and **early clinical use support**. Hands on work includes SolidWorks, AutoCAD, Minitab, fixture development, preclinical testing, risk assessment, process characterization, and validation protocol development. Partners with clinical, quality, regulatory, manufacturing, and external teams to resolve high risk technical issues and create traceable evidence. Communicates findings to senior leaders and project teams, mentors engineers, manages priorities, and balances technical decisions with project economics. This background supports disciplined delivery of safe, manufacturable catheter technologies from concept through early production.

EXPERIENCE

Principal R&D Engineer, Electrophysiology Catheter Development

VelaPulse Medical 📅 January 2022 - Present 📍 San Diego, California

Lead regulated catheter and electrophysiology programs from clinical need through prototype development, validation, transfer, and commercialization readiness. Provide technical direction, mentor engineers, and coordinate quality, regulatory, manufacturing, clinical, and external partners.

- Architected miniaturized catheter prototypes in **SolidWorks**, improving fixture readiness for **preclinical testing**.
- Translated clinical needs into flexible assemblies, resolving design risks through rapid iterative experiments.
- Applied **design controls** and **risk assessment**, preserving traceability across validation and commercialization decisions.
- Analyzed verification data in **Minitab**, guiding targeted responses to technical failures and process variation.
- Coordinated quality, regulatory, manufacturing, clinical, and external teams through transfer milestones and evidence reviews.
- Mentored junior engineers through design reviews, **technical reports**, priorities, and knowledge transfer.

Senior R&D Engineer, Catheter Technology Development

CardioVector Innovations 📅 April 2019 - December 2021 📍 Oceanside, California

Advanced regulated catheter technology through prototype architecture, **design validation**, **process development**, and manufacturing readiness. Served as a senior technical contributor while aligning engineering evidence with clinical objectives, resource limits, and regulatory expectations.

- Developed AutoCAD catheter fixtures for preclinical trials, shortening iteration cycles during prototype refinement.
- Evaluated **advanced catheter materials** and flexible electronics against performance and manufacturability requirements.
- Built **validation protocols** addressing safety, performance, manufacturability, and **regulatory readiness**.
- Characterized processes with Minitab, helping manufacturing partners isolate sources of inconsistent test results.
- Prepared technical reports, memoranda, and **design control records** for cross functional review.
- Presented findings and recommendations to senior management, regulatory partners, and project teams.

Preclinical testing

Technology transfer

LANGUAGES

English Native

Spanish Proficient

MY CAREER



Principal R&D Engineer,
Electrophysiology Catheter
Development at VelaPulse
Medical (4.8 Years)

Senior R&D Engineer,
Catheter Technology
Development at CardioVector
Innovations (2.7 Years)

R&D Engineer II, Miniaturized
Device Development at AtriaFlex
Devices (2.7 Years)

R&D Engineer,
Electrophysiology Device
Development at NovaCath
Research (2 Years)

Associate R&D Engineer,
Medical Device Prototyping at
SignalPath Biomedical (1.9
Years)

R&D Engineer II, Miniaturized Device Development

AtriaFlex Devices 📅 July 2016 - March 2019 📍 Irvine, California

Supported miniaturized catheter and flexible device programs from feasibility through verification, **process characterization**, and transfer preparation. Combined CAD development, structured experimentation, risk analysis, and collaborative **problem solving** across engineering and operations.

- Created **SolidWorks** component designs for miniaturized catheter assemblies, supporting repeatable prototype builds.
- Designed test fixtures for preclinical evaluation, connecting device requirements with practical measurement methods.
- Performed risk assessments that clarified failure modes and focused design verification activities.
- Investigated technical failures through controlled experiments, converting findings into actionable design updates.
- Supported **process development** and basic validation activities with manufacturing and quality stakeholders.
- Documented engineering decisions in reports, records, and review materials for transfer planning.

R&D Engineer, Electrophysiology Device Development

NovaCath Research 📅 June 2014 - June 2016 📍 Tustin, California

Contributed to electrophysiology catheter development through early prototypes, flexible component design, verification support, and technical documentation. Worked with senior engineers and cross functional partners to move promising concepts toward manufacturable solutions.

- Modeled catheter components in **SolidWorks**, supporting early feasibility builds and design discussions.
- Refined flexible assemblies for miniaturized devices through hands on prototype evaluation.
- Executed preclinical test preparation using fixtures, defined methods, and documented acceptance criteria.
- Reviewed process data in Minitab, helping engineers separate material variation from design effects.
- Supported design control updates and risk documentation during verification planning.
- Shared technical findings with quality, manufacturing, and regulatory partners during program reviews.

Associate R&D Engineer, Medical Device Prototyping

SignalPath Biomedical 📅 June 2012 - May 2014 📍 Costa Mesa, California

Supported early medical device prototyping, CAD updates, fixture preparation, test execution, and engineering documentation. Built foundational experience in catheter development, design controls, analytical problem solving, and collaborative product development.

- Updated **AutoCAD** layouts for catheter prototypes, improving clarity during engineering build reviews.
- Assisted with fixture assembly and preclinical test setup for early device concepts.
- Recorded test observations and organized evidence for design verification documentation.
- Supported **risk assessment** sessions by tracing potential failures to device requirements.
- Used structured experiments to investigate prototype issues and inform senior engineering decisions.
- Coordinated technical details with manufacturing and quality partners during prototype handoffs.

PROJECTS

Electromagnetic Catheter Navigation Platform 📅 2024

Led prototype architecture for a navigation enabled electrophysiology catheter, combining miniaturization, flexible electronics, advanced materials, fixture development, and preclinical test planning.

Catheter Manufacturing Transfer Readiness 📅 2021

Coordinated process characterization, risk review, validation evidence, and technical documentation supporting transfer of a regulated catheter platform into early production.

LEADERSHIP & AWARDS

- Principal technical contributor recognized for advancing electrophysiology catheter programs from prototype architecture through validation readiness.
- Technical Mentor, Southern California Biomedical Engineering Network, 2021 to Present, supporting practical growth among biomedical engineers.
- Trusted cross functional partner for clear technical communication across quality, regulatory, clinical, manufacturing, and engineering teams.

EDUCATION

Master of Science in Biomedical Engineering

University of Southern California 🎓 GPA: 4.0 📅 2012 📍 Los Angeles, California

Coursework: Medical device development, biomaterials, biomechanics, design validation

Bachelor of Science in Mechanical Engineering

California State University, Long Beach 🎓 GPA: 4.0 📅 2010 📍 Long Beach, California

Coursework: Mechanical design, manufacturing processes, materials science, engineering analysis

CERTIFICATIONS

- ASQ Certified Quality Engineer 📅 2018
- Master of Science in Biomedical Engineering 📅 2012

TECHNICAL SKILLS

- **CAD Design:** SolidWorks, AutoCAD, prototype modeling
- **Statistical Analysis:** Minitab, verification data, process variation
- **Catheter Technologies:** Electrophysiology, navigation devices, flexible electronics
- **Materials Engineering:** Advanced catheter materials, biomaterials, material evaluation
- **Design Controls:** Requirements analysis, traceability, design records
- **Validation Engineering:** Design validation, validation protocols, acceptance criteria
- **Process Development:** Process characterization, basic process validation, manufacturing readiness
- **Risk Management:** Risk assessment, failure analysis, design risk
- **Manufacturing Transfer:** Technology transfer, early production, DTV and DTQ
- **Testing Methods:** Preclinical testing, fixtures, verification methods
- **Regulatory Documentation:** Technical reports, memoranda, First In Human materials
- **Project Leadership:** Strategic projects, resource planning, milestone management

PROFESSIONAL AFFILIATIONS

- Southern California Biomedical Engineering Network, Technical Mentor, 2021 to Present.
- Professional collaboration with medical device quality, regulatory, manufacturing, clinical, and engineering communities.

ADDITIONAL INFORMATION

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

REFERENCES

AVAILABLE ON REQUEST