

NEIL SHEEHAN

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Education:

Villanova University, Villanova, PA: BS Mechanical Engineering, 1968
Summa Cum Laude
Newspaper Editor-in-Chief
1993 Alumni Professional Achievement Award

Harvard University, Cambridge, MA: Graduate School, 1968-1969
Engineering and Applied Physics
National Science Foundation Fellow

University of California, Berkeley, CA: Pre-Med Coursework, 1974-1975
Organic Chemistry and Biology

Experience:

1993-2020 **Consulting Engineer and Expert Witness** (1995-2020)
Independent consulting engineer specializing in medical products design and development with a focus on medium and high volume disposable devices and components. (Expert witness information is available upon request.) Engineering clients, in alphabetical order, have included:

Arcturus (Mountain View, CA)	<i>Laser micro-dissection disposable elements and packaging designs.</i>
Better Care (San Francisco, CA)	<i>Male and female incontinence devices.</i>
BlueVine Ventures (Menlo Park, CA)	<i>Medical technology assessments.</i>
Cardeon, Inc. (Huntington Beach, CA)	<i>Specialty cardiac catheter.</i>
Cardiometrics (Mountain View, CA)	<i>Diagnostic cardiac catheter components.</i>
Decibel Instruments (Hayward, CA)	<i>Disposable elements for innovative hearing aid system.</i>

EconoMEDics Inc. (Palo Alto, CA)	<i>Medical devices for emerging markets.</i>
Eunoe, Inc. (Pleasanton, CA)	<i>Implantable Alzheimer's Disease devices.</i>
Fallbrook Engineering (Valley Center, CA)	<i>Various proprietary medical devices.</i>
FemmeSource Health (Pasadena, CA)	<i>Various gynecological diagnostic devices.</i>
Fogarty Engineering (Portola Valley, CA)	<i>Proprietary catheter devices.</i>
Heartstream (Seattle, WA)	<i>Multi-function defibrillator electrodes. (Acquired by Philips)</i>
Hexcel (Pleasanton, CA)	<i>Proprietary materials-based device.</i>
HiLife Therapeutics (So. San Francisco, CA)	<i>Lens enhancements for patient communications systems.</i>
Inpress Technologies (Menlo Park, CA)	<i>Postpartum hemorrhage (PPH) prevention device.</i>
Inviro Medical Devices (Vancouver, BC)	<i>Innovative safety syringes.</i>
IPT, Inc. (Palo Alto, CA)	<i>Umbilical cord blood sampler/clamp.</i>
Katecho, Inc. (Des Moines, IA)	<i>Multi-function defibrillator electrodes and other proprietary devices.</i>
Keimar, Inc. (Mountain View, CA)	<i>Proprietary in vivo measurement of blood parameters.</i>
KippGroup (Ontario, CA)	<i>Proprietary IV-related device.</i>
Lucent Medical (Bellevue, WA)	<i>Endoscopic tool containment systems.</i>
Mallinckrodt / Nellcor (Pleasanton, CA)	<i>Pulse oximetry sensors.</i>

Mayfield Fund (Menlo Park, CA)	<i>Medical technology evaluations.</i>
McGaw, Inc. (Irvine, CA)	<i>Cannula-based needle-less injection sites for IV administration.</i>
Medasonics (Fremont, CA)	<i>Transcranial ultrasonic (Doppler) probe mounting systems.</i>
MedicalCue (Mountain View, CA)	<i>Proprietary universal newborn screening technology.</i>
Medisystems (Seattle, WA)	<i>Hemodialysis bloodline components.</i>
Medtronic CardioRhythm (San Jose, CA)	<i>Cardiac ablation catheter systems.</i>
Minimus Surgical (Menlo Park, CA)	<i>Proprietary obesity surgery devices. (Founder)</i>
Natus Medical (San Carlos, CA)	<i>Advanced ear couplers and electrodes for newborn hearing screener.</i>
Nexan (Cambridge, UK)	<i>Proprietary multi-function electrode systems.</i>
Pneumation (Evergreen, CO)	<i>CPAP (Continuous Positive Airway Pressure) system for sleep apnea.</i>
R&D Medical (Lake Forest, CA)	<i>Various high-volume disposables including complex electrode systems.</i>
Rhaphis Medical (Sunnyvale, CA)	<i>Semi-automatic surgical suturing device for the third world.</i>
Starion (Palo Alto, CA)	<i>Proprietary electrosurgery device.</i>
Target Therapeutics (Fremont, CA)	<i>Packaging and delivery system for cranial catheter/coil occlusion device.</i>
Vigilo Networks (Cupertino, CA)	<i>Remote sensing of physiological parameters via disposable patch.</i>
Woodside Biomedical (Carlsbad, CA)	<i>Proprietary nerve stimulation electrode designs (disposable and reusable).</i>

- Woolsthorpe LLC
(Brentwood, TN) *Proprietary pulse oximetry applications.*
- Yono Labs
(Mountain View, CA) *Devices for sensing and tracking ear-based ovulation parameters.*
- 1989-1992 **Natus Medical Inc.**, Foster City, CA
Vice President, Engineering and Manufacturing
Medical electronics and disposables for neonates.
Start-up. Created and managed engineering, manufacturing, documentation, quality assurance, materials, clinical testing, customer and technical service. Established comprehensive vendor network. Thirty-five employees.
- 1987-1989 **Nellcor Incorporated**, Hayward, CA
Manager, Disposables Engineering
Pulse oximetry and capnography.
Design, management of small staff, clinical research, marketing aids, national sales meeting presenter.
- 1986-1992 **Medisystems Corporation**, San Francisco, CA
Consultant
Hemodialysis blood tubing sets and related components.
Individual contributor.
- 1986-1987 **Critikon, Inc.**, San Jose, CA
Senior Mechanical Engineer
Intravenous delivery systems and sets.
Coordination of San Jose, Tampa and Japan Medical Supply.
- 1985-1986 **Raychem Corp. / Menlo Care Inc.**, Menlo Park, CA
Consultant
Intravenous catheters and systems.
Individual contributor.
- 1984-1985 **American Hospital Supply Corp.**, Emeryville, CA
Senior Project Engineer
Liquid handling systems, especially pipettors.
Individual contributor, liaison during transfer to American Dade.
- 1982-1983 **Liquid Bracelet Company**, Berkeley, CA
Sole Proprietor
Liquid-filled (IV tubing) fashion jewelry (\$250,000 in sales).
Design, manufacturing, marketing, sales and public relations.

- 1975-1982 **Cutter Laboratories**, Berkeley, CA
Product Development Engineer
Intravenous delivery systems and components.
Individual contributor, liaison to other plants.
- 1969-1973 **Magnetic Head Corporation**, Hauppauge, NY
Design Engineering Supervisor
Magnetic tape heads for computer peripherals.
Created department, documentation and MRB systems.
- 1965-1967 **Tangent Machine and Tool Corp.**, Farmingdale, NY
Summers Tool Designer/Drafter and Machine Operator

Product designs, inventions and patents (partial list):

Consultant

Innovative manufacturing methods and devices for athletes (Rosecroft)
Extrusion, materials, adhesives, design configurations
Patent No. 9,009,869 (April 21, 2015)
Patent No. 9,585,427 (March 7, 2017)
Patent No. 10,314,352 (June 11, 2019)

Innovative percutaneous surgical devices and methods (Minimus)
Inflatable anchors, obesity applications, organ wall implantation
Patent No. 8,070,673 (December 6, 2011)

Innovative percutaneous surgical devices and methods (Minimus)
Tissue modification, obesity applications, anchor systems
Patent No. 7,931,580 (April 26, 2011)

Innovative percutaneous surgical devices and methods (Minimus)
Device implantation, obesity applications, fastener systems
Patent No. 7,255,675 (August 14, 2007)

Innovative safety syringes and accessories (Inviro)
Injection molding, assembly techniques, differential resistances.
Patent No. 6,394,979 (May 28, 2002)
Patent No. 6,616,632 (September 9, 2003)

Chest-mounted, multi-function electrode systems (Nexan)
Rotary die cutting, hydrogels, adhesives, assembly techniques.
Patent No. D 425,203 (May 16, 2000)
Patent No. 6,385,473 (May 7, 2002)

Packaging and delivery system for catheter/coil occlusion device (Target)
Injection molding, porous plastic, assembly techniques.
Patent No. 5,669,931 (September 23, 1997)
Canadian Patent No. 2173023C (August 28, 2001)

Multi-function defibrillation electrode systems (Heartstream/Philips)
(Proprietary Information)

Advanced ear coupler and electrode designs (Natus)
Injection molding, die cutting, acoustic shaping, universal disposable.
Patent No. 5,826,582 (October 27, 1998)
Patent No. 5,913,309 (June 22, 1999)
Patent No. 6,386,314 (May 14, 2002)

Transcranial Doppler mounting systems (Medasonics)
Silicone rubber, nitrile PVC molding, disposable and re-usable.
Patent No. 5,390,675 (February 21, 1995)

Tubing clamps, needle guards and protectors, CAPD components, chambers, filters, tubing, injection sites, tamper-evident luer cap and injection site, connector systems, etc. for hemodialysis bloodlines (Medisystems)
Injection molding, blow molding, assembly techniques, stereo lithography.
Japanese Patent No. 9122230A2 (May 13, 1997)
Patent No. 5,772,624 (June 30, 1998)
Patent No. 6,165,149 (December 26, 2000)
Patent No. 6,620,119 (September 16, 2003)
Patent No. 6,666,839 (December 23, 2003)

Natus Medical

Neonatal breath sampling system
Multi-lumen profile extrusion, activated carbon filters, OEM modifications.
Patent No. 5,357,971 (October 25, 1994)
Patent No. D 354,808 (January 24, 1995)
Patent No. 5,404,885 (April 11, 1995)
European Patent No. 0 648 088 B1 (August 16, 2001)
European Patent No. 1 062 909 B1 (October 29, 2003)

Super Jelly Button® electrode and other electrode designs
Special purpose modifications to off-the-shelf products, hydrogels.

MiniMuffs™ neonatal noise attenuators for NICU babies
Laminated foam, vacuum forming, acoustics, sequential vendor assembly.
Patent No. 5,243,709 (September 14, 1993)

ALGO-PAK™ infant hearing screening supplies package
User-flexible, non-kit disposables pack, less packaging, more options.

DRI-PREP™ prepping pads for electrode site preparation
Triple-laminated rotary die cutting, abrasives.

Ear Couplers® disposable ear phones for infant hearing screener
PVC foam, steel rule die cutting, hydrogel attachment technique.

Nellcor

Airway adapter family for multi-function (oximetry and capnography) monitor
Injection molding, filters (incl. hollow fiber), assembly techniques.
Patent No. 5,101,817 (April 7, 1992) with Correction

Dual-path sample tube assembly for multi-function monitor
Silicone rubber molding, solvent shrink sleeves, assembly techniques.

Medisystems

Guarded winged needle assemblies
Multiple designs, injection molding, assembly techniques.
Patent No. 5,112,311 (May 12, 1992)
Patent No. 5,266,072 (November 30, 1993)
Patent No. 5,433,703 (July 18, 1995)
European Patent No. 0 436 646 B1 (August 31, 1994)
European Patent No. 0 558 162 B1 (March 6, 1996)

Assorted injection sites, tubing clamps, chamber components and filters, etc.
Ultrasonics, injection molding.

Critikon

Complete (gravity, controller and pump) line of IV sets
Clean room assembly, packaging, sterilization, off-shore sourcing.

Menlo Care

Adjustable catheter assemblies
Extrusion, injection molding, materials.
Patent No. 4,728,322 (March 1, 1988)
Canadian Patent No. 1273540A1 (September 4, 1990)
Patent No. 4,955,863 (September 11, 1990)
European Patent No. 0 233 055 B1 (July 3, 1991)

American Hospital Supply

Multi-volume air displacement pipette

Seals, precision grinding, assembly techniques, injection molding.

Patent No. 4,679,446 (July 14, 1987)

Sole Proprietorship

The Liquid Bracelet™ fashion jewelry

Consumer item, assembly techniques, fragrance, million pieces sold.

The Original Halley's Comet Ball™ novelty toy

Consumer item, assembly techniques, packaging, millions sold.

Cutter Laboratories

Injection site for fluids / UltraSite™ #2

Ultrasonic welding, assembly techniques, automatic assembly.

Patent No. 4,416,661 (November 22, 1983)

Swage-molded injection site / UltraSite #1

Ultrasonic swaging, injection molding, universally adopted design.

Patent No. 4,294,249 (October 13, 1981)

Injection device / injection bulb

Compression molding, sealing techniques, swabbing techniques.

Patent No. 4,252,117 (February 24, 1981)

Caged disc valve for volumetric chamber

Compression molding, injection molding, ultrasonic assembly.

Canadian Patent No. 1157722A1 (November 29, 1983)

Magnetic Head Corporation

Method of manufacturing magnetic heads

Casting, precision machining, assembly techniques.

Patent No. 3,678,576 (July 25, 1972)

Professional Affiliation:

Society of Plastics Engineers (Member *Emeritus*)