

**SCOTT O. GANAJA, P.E.**  
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## **Curriculum Vitae**

### **Mechanical Engineer / Expert Witness**

Specializing in the design and manufacture of exercise, medical, and consumer products. Experienced in matters involving products liability, intellectual property, and manufacturing. Ongoing product development experience provides for real-world engineering assessments.

### **Experience**

#### **Mechanical Engineer, President**

*PROgressiv Engineering, Inc.*, San Luis Obispo, CA 1989-present

- Mechanical Design Engineering: Design of complex mechanical products, stress analysis, failure analysis, motion analysis, and material selection.
- Manufacturing Engineering: Manufacturing cost analysis, quality control, and tool design (fixtures, dies, and molds).
- Computer-Aided Design/Engineering (CAD/CAE): Generate computer models, renderings, and production drawings. Finite-element analysis (FEA), motion simulation, and reverse engineering.
- Specializing in the design and manufacture of metal and plastic products made by injection molding, stamping, machining, forming, and welding.
- Prototypes: Construct prototypes and models for testing and demonstration. Perform strength and durability tests.
- Engineering Expert Witness.

#### **Manufacturing Engineer**

*Swedlow Incorporated*, Composites Division, Garden Grove, CA 1987-1989

Directed manufacturing processes for start-up and on-going programs. Coordinated estimating, tooling, production, and quality control. Manufactured components for commercial aircraft and defense applications.

### **Education**

Bachelor of Science Degree, **Mechanical Engineering**, 1986

*California Polytechnic State University, San Luis Obispo.*

Emphasis: Stress analysis, manufacturing processes, machining/welding, plastics design, plastics processes/technology, composite materials.

### **Engineering Expert:**

Provide engineering services and technical opinions in legal matters based on experience, education, inspection, research, and testing as necessary.

- Products liability cases involving possible design or manufacturing defects.

Exercise / Sports equipment	Medical devices
Bicycles	Dental devices
Consumer products	Machinery / Tools
- Patent infringement, copyright, and trademark matters involving mechanical products.
- Manufacturing matters involving manufacturing documentation, industry conventions, and trade secrets.
- Approximately 70 cases.

### **Professional Licenses**

- Professional Mechanical Engineer, California, No. M 27275.
- Professional Manufacturing Engineer, California, No. MF 4807

### **Professional Associations**

American Society of Mechanical Engineers (ASME)  
Society of Manufacturing Engineers (SME)  
Society of Plastics Engineers (SPE)

### **Patents**

- Thirteen U.S. Patents Issued - Inventor or co-inventor, numbers:  
6,733,290 6,610,234 6,162,234 6,126,677 6,125,574 6,116,573 5,806,959  
5,664,830 5,964,388 5,582,127 5,480,076 5,174,576 5,149,034

### **Technical Presentations**

- “*Part Design for Machining*”, Guest Lectures, California Polytechnic State University, San Luis Obispo, Mechanical Engineering Department, 2003, 2004.
- “*Plastic Part Design*”, Guest Lectures, California Polytechnic State University, San Luis Obispo, Mechanical Engineering Department, 2002, 2006.
- “*Plastic Part Design for Injection Molding*”, Seminar Instructor, ICON Health and Fitness, Inc., for mechanical engineers and designers in the R&D group, 1999.

## **Product Development Engineering Examples**

### ***Medical / Dental Products:***

- Obstetrical Chair – Co-designed an electro-mechanical chair that raises the patient and rotates her rearward providing various birthing positions. Designed in conformance with UL Standard 544 (Medical and Dental Equipment).
- Positioning Arm – Engineered an articulating arm that allows complex manual positioning of a hand-held dental device.
- Breast Pump – Co-engineered high-efficiency low-cost user-friendly breast pump.
- Dental Composite Light-Curing Devices – Co-engineered hand-held devices that use high-intensity blue light to rapidly cure composite dental fillings and restoratives. Involved fiber optics, engineered optical elements, and thermal management.
- Synthetic Ligament Anchor – Co-designed and prototyped a bio-absorbable plastic fastener used to attach ligament or tendon to bone.
- Special-Purpose Eye Drop Dispenser – Co-designed and prototyped a device that gently administers a metered dose of ophthalmic solution horizontally onto the user's eye utilizing twin droplets.
- Wearable Hand Sanitizer – Co-designed a compact body-worn antiseptic alcohol gel dispenser for use by health care professionals.

### ***Sports and Fitness Products:***

- Elliptical Strider – Consulted on an institutional walking-type exercise device in which the user's feet follow an elliptical path rather than a linear or circular path.
- Hiker/Treadmill – Consulted on an institutional treadmill with the ability to vary its incline to over 25 degrees to simulate hiking as well as walking and jogging.
- Strength Trainer – Consulted on an institutional strength-training unit that includes weight stacks, cables, and adjustable pulley positions.
- Removable Spurs – Co-engineered spurs that attach directly to equestrian riding boots without using straps. These provide more control and are easy to remove.
- Exercise Bicycle – Consulted on an institutional recumbent exercise bicycle.
- Trailing Arm for a Suspension Mountain Bicycle – Consulted on a rear swing arm using advanced composites.
- Carbon Fiber Bicycle Crank Arms – Engineered and prototyped light and stiff crank arms designed for high performance as well as for manufacturability.
- Baseball Throwing Training Aid – Engineered and prototyped a portable electronic device that indicates when incorrect throwing mechanics are being used.

***Consumer Products:***

- **Massage Chair** – Engineered a reclining chair with a mechanism that rolls up and down the user's back while massaging in circles. Designed in conformance with UL Standard 1647 (Motor-Operated Massage and Exercise Machines).
- **Hole Digging Attachment** – Co-engineered an attachment for string trimmers used to dig holes and turn soil. Used with gas-powered devices, capable of 12,000 RPM.
- **Massage Products** – Engineered a neck-massaging device, a back massaging flotation device, and a portable folding massage chair.
- **Ballhead for Photography** – Co-engineered a professional-quality ballhead for use on tripods that allows photographers to precisely position and pan large cameras.
- **Inflatable Location Marker** – Engineered and prototyped a single-use rescue device that utilizes high-pressure helium, a firing mechanism, and a balloon.
- **Coin Roll Cutter** – Co-designed and prototyped a cylindrical device that easily and safely slits coin roll wrappers to simplify removal of the shrink-wrapped coins.

***Manufacturing:***

- **Manufacturing Tools** – Designed drilling, machining, sawing, punching, bonding and assembly fixtures as well as inspection gages to improve quality, productivity, and safety on production lines.
- **Laser Testing Apparatus** – Engineered a precision alignment and clamping mechanism for simultaneously testing 16 fiber-optic laser devices.
- **Replaceable Valve Packing** – Engineered a cartridge-type valve packing system designed to simplify replacement in difficult (nuclear power) environments.