

# Mark Alt, Senior Design Engineer

---

Cell Phone: **214-763-8636**

117 La Costa Court

Home Email: **mark.alt@verizon.net**

Garland, Texas 75044

Personal Career Website: <http://markalt.site/>

Aug 2019

---

Summary: • Engineer/Designer • Optical Microelectronic Packaging • Optical Modules  
• Opto-Mechanical Design • LIDAR • Fiberoptic • MEMS • Nanotechnology • RF  
• Thin-film Microelectronics • Robotic Active- Alignment Optical-Assembly Equip

Fields: • LIDAR for Autonomous Vehicles • Optics • MEMS • Datacom/Telecom  
• Semiconductor Lasers • Medical • Automation • LIDAR for Autonomous Vehicles

Disciplines: • Optical Engineering • Mechanical Engineering • CAD Expert

Tools: • Mechanical CAD ( SolidWorks, AutoCAD Inventor, Pro-E, FeatureCAM ...)  
• Project Management Software ( Microsoft Project, ... )  
• Programming Languages ( LabVIEW, Visual C++ Machine Automation, ...)  
• Manufacturing Systems, MRP-II, Material Control (Oracle, MatrixOne, ...)  
• Support Geometry for Zemax and LensMechanix for SolidWorks.

Education: • BSEE Ohio State University (OSU) 1982  
• Southern Methodist University (SMU) Graduate Courses

<http://markalt.site/>

**2008-Present (11 yrs) Senior Optical & HW Dev Engineer**

***Sanmina Inc.*** ; Opto-Electronics, Medical, Telecom, Automotive,  
Consumer Electronics, Laboratory Analyzers, Spectrometers

***Optical Design Group:*** Fiberoptic and Free Space Optics, Optical Design, Assembly Automation,  
Optical Active-Alignment Equipment, Lidar Modules, Spectrometers, Laser Devices.

***Experience Leading:***

- Head of Opto-Mechanical Engineering for the Optical & Microelectronics Div (OMED).
- Responsible electro-mechanical, opto-mechanical, and fiberoptic packaging efforts.
- Responsible for mechanical and CAD aspects of Contract proposals, & New business development.

***Design Experience:***

- Senior CAD and Opto-mechanical Designer for the product development group.
- SolidWorks and Inventor Expert.
- Opto-mechanical design of laser-based, Autonomous Vehicle & LIDAR systems with free-space Microlens, micro-optics, and fiber optics.
- Optics for Frequency Modulated Doper Lidar and Incoherent Time-of-Flight Lidar.
- Designed robotic assembly stations for active alignment & UV epoxy attachment of fiberoptic telecom modules, scientific lab instruments, and medical units.
- Designed robotic assembly stations and active alignment stations:
  - Systems with many degrees of freedom, sub-micron precision, pneumatics, and machine vision.
  - Systems for Laser weld & epoxy attachment of lasers, photodiodes, lenses, & optics.
- Responsible for collaborate and design with Zemax optical engineers.
- Mechanically designed an exterior harsh-environment telecom modem module for remote high-speed internet applications.
- Designed a bench-top laboratory food-safety, pathogen-testing system with optics and electronics.
- Mechanical Free-Space Photonics for Telecom Transceivers, Demuxs, High speed Modulators, etc.
- Free-space 1550 nm Pulsed laser with Pumps, Erbium doped fiber, and high power micro lenses.
- Design Miniature spectrometer particle analyzer and spectrometry interrogation systems.

<http://markalt.site/>

**2005-2008 (3 yrs) Senior Mechanical Engineer*****Photodigm Inc* ; Laser Diode Mfr of Gradient Surface-Emitting and DBR Lasers**

- Designer of Submounts, Hermetic packages, & Modules. Near Infrared to 1550 nm.
- Responsible for Semiconductor Laser Packaging design. Hermetic Packaging.
- Worked with Free-space Aspherical Lens and Waveguided Frequency-doubling Crystals.
- Designed and built Thermoelectric-cooler based Test Platforms.
- Designed Robotics for High-vacuum E-beam Evaporation Chamber.
- Designed and Built an Automatic Laser Test Station with Micropositioners and Pneumatics.
- Designed Sealed TO-8 and TO-56 Can type of Hermetic Laser Package.

**2003-2005 (2 yrs) Head of Engineering Technology*****NanoLign* ; Nanopositioning Microelectronics Mfr, Optical and RF Devices**

- Head of Engineering for a five employee, high-tech, MEMS based, start-up company.
- Responsible for all nanotechnology packing and microelectronic component development.
- Primary designer for the company, including solid-modeling and CAD efforts.
- Designed all the chip-level, component-level, and module-level packaging.
- Worked with miniature free-space RF components. (Phase shifters, etc).
- Design support for KU band Satellite-tracking Phased-array Flat-panel Patch Antenna.

**2002-2003 (1 yr) Head of Mechanical Group*****Sanmina-SCI* ; Electronics Contract Mfr, Opto-Electronics, Medical, Datacom**

- Optical Module Packaging Expert. • Miniaturization, Tiny Free-space optics, Micro-positioning.
- Product Development. Components, Modules, and Circuit cards.
- Contracting efforts, Technical Sales, Proposal Development.
- Project Planning and Cost Development. • Web Site Designer for Document Control System.

**1995-2002 (8 yrs) Member of Technical Staff*****Alcatel* ; Fiber Optic Transmission Sys, SONIT, OC-192, WDM, Microwave**

- Fiber Optic Components Designer. Microwave Hybrid Designer. Active Alignment of Optics.
- Package Designer of 10Gb Laser Transmitter and Fiber Optic Receiver Packages.
- Ceramic Microcircuit Layout and Design. Microstrip & Coplanar Transmission Lines.
- CAD System Administer (AutoCAD). Computer Engineering Services Coordinator.
- Mechanical, Thermal, and Optical Analysis.

**1990-1995 (5 yrs) System Engineer*****Telephony International* ; Operator Services Systems, Class 5 Switch**

- Management Support: System Engineering, Proposals, Staging, and Field Support.
- Operations and Production: MPR-II, Material Planning, Purchasing, Inventory.
- Project Engineering: Digital and Analog Telecom Board Designer. • Software Programmer (C++).

**1980-1990 (10 yrs) Design Engineer*****Texas Instruments* ; Avionics, Electronics, Defense Systems**

- System Engineering on Test Technology Design Issues. • Built-in-Test Hardware Design.