

# Mark Alt

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## Summary:

- Senior Opto-Mechanical Designer, • Packaging Design of LIDAR for Autonomous Vehicles,
  - Fiber Optics & Free Space Optics, • Automation, • Optical Active-Alignment Equipment,
  - MEMS, • Photonic Circuits, • Microelectronics Packaging • Semiconductor Lasers,
  - Medical Optics, • Datacom/Telecom Components, • Spectrometry.
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## Experience:

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### 2008 - Present

#### **Senior Optical & HW Dev Engineer, Sanmina Inc, Dallas TX, (12 yrs)**

##### Field:

- Optical Active-Alignment Equipment, • LIDAR Modules, • Laser Devices,
- Opto-Electronics, • Medical, • Telecom, • Automotive, • Quantum Computers,
- Consumer Electronics, • Laboratory Analyzers, • Spectrometers,
- Fiberoptic and Free Space Optics, • Optical Design, • Assembly Automation.

##### 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 CAD aspects of Contract proposals & New business dev.

##### 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.
- Opto-mechanical design of Quantum Computer fiber optic interconnect.
- 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, built, & programmed robotic assembly stations and active alignment stations:
  - Alignment Systems with many degrees of freedom, sub-micron precision, linear motors, pneumatics, and machine vision.
  - Systems for Laser weld & epoxy attachment of lasers, photodiodes, lenses, & optics.

- Responsible for collaboration 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.
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## **2005 - 2008**

### **Senior Mechanical Engineer, Photodigm Inc, Dallas TX, (3 yrs)**

- Laser Diode manufacturing of Gradient Surface-Emitting and DBR Lasers.
  - Designer of Submounts, Hermitic 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.
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## **2003 - 2005**

### **Head of Engineering Technology, NanoLign Inc, Dallas TX, (2 yrs)**

- MEMS based Nanopositioning Microelectronics manufacturer of Optical and RF Devices.
  - Head of Engineering for a five employee, high-tech, MEMS based, start-up company.
  - Responsible for all nanotechnology packaging & 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.
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## **2002 - 2003**

### **Head of Mechanical Group, Sanmina-SCI Inc, Dallas TX, (1 yr)**

- Electronics Contract Manufacturing (ECM) of Opto-Electronics, Medical, Communications.
  - Optical Module Packaging Expert. • Miniaturization, Free-space optics, Micro-positioning.
  - Product Development. • Components, Modules, and Circuit cards. • Butterfly Packages.
  - Team member for Contracting efforts, Technical Sales, Proposal Development.
  - Project Planning and Cost Development. • Web Site Designer for Doc Control System.
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## 1995 - 2002

### **Member of Technical Staff, Alcatel Inc, Dallas TX, (7 yrs)**

- Fiber Optic Component 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.
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## 1990 - 1995

### **System Engineer, Telephony International Inc, Dallas TX, (5 yrs)**

- Operator Services Systems, Class 5 Switch
  - Management Support: System Engineering, Proposals, Staging, and Field Support.
  - Operations and Production: MPR-II, Material Planning, Purchasing, Inventory.
  - Digital/Analog Telecom Board Designer. • Software Programmer (C++).
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## 1980 - 1990

### **Design Engineer, Texas Instruments Inc, Dallas TX, (10 yrs)**

- Defense Avionics, • FLIR, • Thick Film Hybrids, • DC Power Supplies,
  - System Engineering on Test Technology Design Issues, • Built-in-Test Hardware Design.
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## Skills:

- Mechanical CAD, ( SolidWorks, AutoCAD Inventor, Pro-E, FeatureCAM)
  - Zemax OpticsBuilder, (SolidWorks Tool)
  - Project Management Software, (Microsoft Project, ... )
  - Programming Languages, (LabVIEW, Visual C++, Machine Automation, ...)
  - Manufacturing Systems, MRP-II, Material Control, (Oracle, MatrixOne)
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## Education:

- 1982, BSEE Ohio State University (OSU)
  - 1986, Graduate Courses at Southern Methodist University (SMU)
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