Neil Christopher Vanasse
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CAREER OBJECTIVE

Acquire an Optical Engineer Position

CREDENTIALS

- ***Assist in creating and submitting proposals for new work***
  - **Two years experience writing proposals for new SBIR Phase-1 opportunities and following Phase-2 opportunities**
  - **Creating follow up progress reports on government projects**
  - **Fixed Price Quotes for design / manufacturing projects up to $1M**

- ***More than 19 years total experience in design and analysis of Optical Instruments and Laser Systems for the Aerospace Industry as well as Commercial markets*:**
  - **9 years designing optical lenses and telescopes using ZEMAX**
  - **11 years at Lockheed Martin creating optical / mechanical / laser designs and performing analysis on LADAR and Laser systems**
  - **Interfacing to inspection cameras using LabView**
  - **Experience with fiber lasers, low and high power**
  - **Optical manufacturing experience polishing lenses, high damage threshold coatings, and complicated optical assemblies**
  - **Experience in design and analysis of optical metrology instruments**
  - **BS in Mechanical Engineering**
  - **Additional custom part manufacturing experience that adds to my engineering fundamentals**

EXPERIENCE

(Optical / Mechanical Contractor)

Optical / Mechanical Engineer, ***Lockheed Martin, Arete Associates, Foro Energy, Rocky Mountain Instrument, Boulder Imaging*** **2/10 – Current**

- Optical Telescope design and Laser System design for ultraviolet wavelengths.
- Laser System design for unstable lasers and frequency doubling crystals.
- Optical design and Mechanical design of optical heads for 20kW fiber lasers.
- Optical inspection design using MegaPixel cameras ensuring optical performance matches sensor resolution and thermal concerns are mitigated.
- Optical Instrument design combining cameras to form 100-Mpixel images.
- Engineering analysis and tooling design for optical bonded assemblies and the manufacturing process required to manufacture optical components.
- Design and analysis of ultraviolet, visible, and infrared lenses using ZEMAX.
- Utilize LabView to create methods for testing optical assemblies using interferometer inspection methods, autocollimator, and MTF testing.
- LabView data reduction of 2-dimensional interference maps into phase maps
- Processes for programming and setup of aspheric diamond turned lenses.

(Optical Engineer)

Optical Engineer, ***Lockheed Martin*** **2/01 – 2/10**

- Design, analysis, alignment, and testing of high power solid state lasers. Includes oscillators and amplifiers of rod, fiber, and slab design. Data reduction and camera image capture using LabView.

(Optical Engineer)

Optical Engineer, *Lockheed Martin* (CONTINUED) 2/01 – 2/10

- Thermal / Stress analysis using NX/NASTRAN and COSMOS-M GeoStar. Required to simulate thermal / stress deformation of active gain optics as well as passive optical deformation under bulk temperature changes.
- Required to find Optical Path Differences from deformed optical simulations and the resulting Beam-Quality or Wavefront changes using LabView.
- Optical ray-tracing of laser cavities and output telescopes using ZEMAX.
- Image capture and testing of self-referencing interferometers for wavefront analysis using LabView.
- Created unique alignment techniques using interferometric methods.
- Package laser systems for operation in ground, flight, and space flight environments. Detailed conceptual designs using Pro-Engineer.
- Design, analysis, and testing of optical ovens used to maintain crystal temperatures for Second Harmonic Generation, Sum Frequency Generation, and Optical Parametric Oscillation.
- Top level design using Pro-Engineer for laser systems and electronics.
- Design, analysis, and testing of Planer Waveguide Amplifiers. Thermal analysis of waste heat from amplifier and pump diodes.

(Mech Engineer)

Mechanical Engineer, *UCF – ME dept* 10/99 – 02/01

- Designed electric motor assemblies that sustained a max speed of 100,000 rpm. Used IDEAS Master Series to analyze stresses of rotating elements. Produced drawings and fabricated parts in machine shop.
- Required to find temperature distribution for a 200KW generator using IDEAS Master Series from SDRC.
- Established design requirements and fabricated multiple parts for a Formula Race Car, Senior Design project. Responsible for compiling 120 page cost report. Cost report placed 8th out of 87 cars entered.

Design Engineer, *CREOL (UCF) Research Facility* 10/97 – 10/99

- Assisted in design and acquired data for non-linear optic systems and high energy X-ray generation. Included breadboard non-deliverable systems as well as vacuum chamber experiments. Many projects included vibration resistance, heat transfer, and super cooling.
- Designed and assembled optical holders and laser enclosures. Fabricated each assembly utilizing machine shop skills.

(Machinist)

Machinist, *(CREOL, Rowland Precision, LPI Inc.)* 2/96 – 10/97

- Required programming, set-up, and operating Machining Centers for laser precision part manufacturing.

(Mechanic)

Generator Mechanic, *US Army* 8/91 – 2/96

- Electrical Generator Mechanic, where I maintained over 36 large generators.
- Maintained 2 ½ ton and 5 ton cargo trucks and trailers.

EDUCATION

(UCF)

University of Central Florida, Orlando, FL. December 2000

Major: Mechanical Engineer, Systems Option, (BS)
GPA: 3.4/4.0
EIT Certified: Yes
Emphasis: Mechanical Design, Optical-Mechanics, Structural Simulation, Kinematic Systems, and Heat Transfer

(US Army)

Portable Electrical Generator Repair, Pneumatic Hoist Repair,
Wheeled Vehicle Repair. U.S. Army

RELATED SKILLS

(Software Development)

- Developed Structural Optimization routine using IDEAS Master Series
- Routine reduced high stress concentrations automatically
- Routine removed non-stressed material to reduce weight
- Iteration conducted in C/C++ access element information

(Software)

- Solidworks and its associated database
- Pro-Engineer WILDFIRE and CREO, Intralink and Windchill databases
- NX / NASTRAN
- Cosmos/M 3.0 (GeoStar)
- I-DEAS Master Series from SDRC
- MATLAB
- LabView
- Microsoft Visio for Schematics
- AutoCAD
- Mathcad
- C and C++ programming
- Microsoft Office 2013 including Word, Excel, Power Point, and Project

(Computers)

- Configure, network, and troubleshoot Windows based computers
- Hardware/software installation on Windows platforms
- Experience using multi-meters, oscilloscopes, and data collection software

MEMBERSHIPS

- Society of Automotive Engineering (SAE), Formula Design Project
- Pi Tau Sigma, Mechanical Engineering Honor Society, President 1999 - 2000
- Tau Beta Pi, National Engineering Honor Society
- Golden Key National Honor Society