



# CONTRAST<sup>®</sup>

## OPTICAL DESIGN & ENGINEERING

...redefining the boundary between light & dark...

By:

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CODE, Inc. Co-Founder

Chief Technical Officer

UNM Research Associate Professor

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OPTICAL DESIGN & ENGINEERING, INC.  
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Contact us:

505.286.8338

[www.contrastoptical.com](http://www.contrastoptical.com)

[info@contrastoptical.com](mailto:info@contrastoptical.com)



## ***Mission Statement***

**We are dedicated to providing state-of-the-art optical system design and analysis to our customers**

### **World-class Optical Engineering**

- Cradle-to-grave system design
  - Product development
  - Rapid prototyping
  - No job too big or too small
- Employing the best engineers in the industry
- Cost-effective alternative to hiring full-time staff
  - 19+ years of experience
- 3 Patents pending for optical and mechanical designs

*Let us design your optical system right the FIRST time!*



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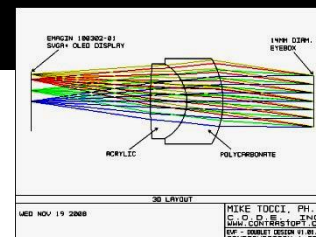
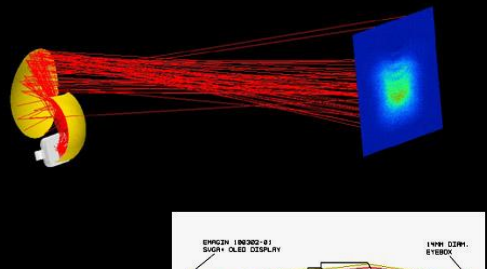
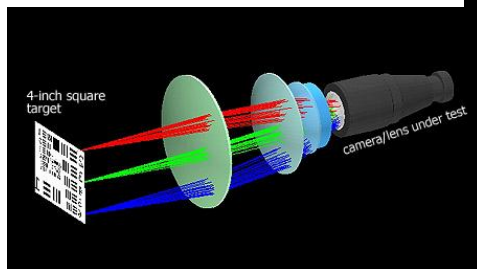
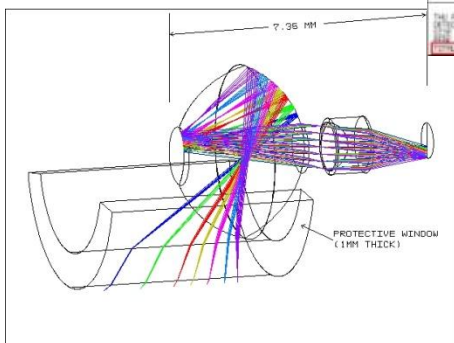
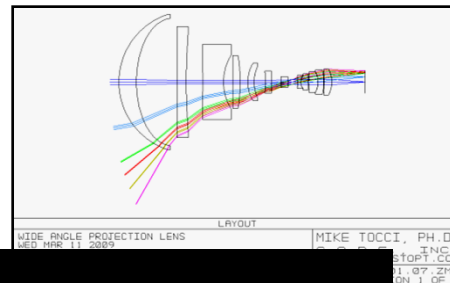
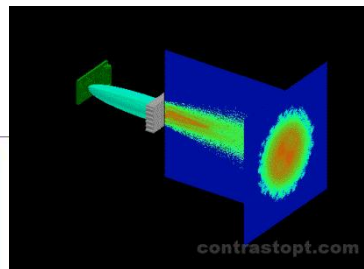
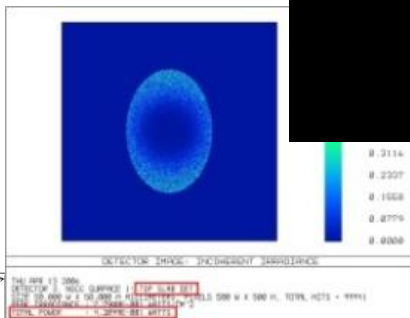
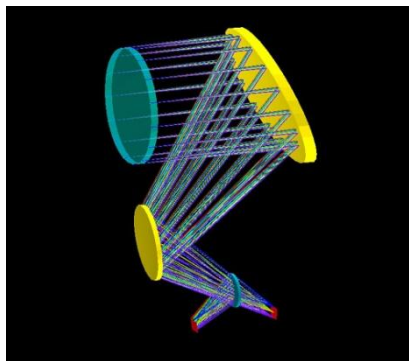
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# Optical Design and Analysis Experience



## **OPTICAL DESIGN and SIMULATION**

- High Power Laser Resonators
- Medical Imaging Systems
- Multispectral and Hyperspectral Imaging
- Zoom Lens Systems
- Telescope Relay Systems
- UV, Visible, NIR, MWIR Imaging Systems
- Fiber Optics
- Polarization Control
- Complex Stray Light Analysis
- Adaptive Optical System Design
- Radiometry Studies
- Segmented Primary Telescope Design
- Terahertz Imaging Design
- Wavefront and Boresight error simulation
- ZEMAX-EE software tools



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State-of-the-art computers allow Contrast Optical to perform design and analysis tasks...FAST!

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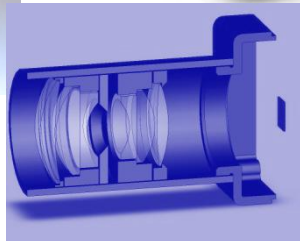
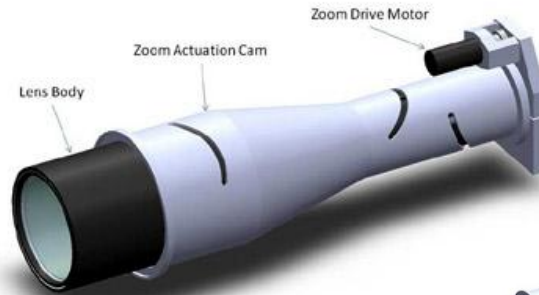
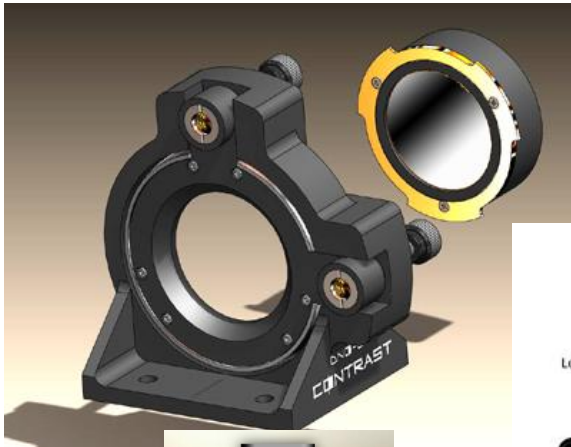
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## OPTO-MECHANICAL DESIGN

- Finite-Element Analysis of Components
- Lightweight Optical Designs
- Custom Lens Mount Design
- Fast-Steering Mirror Mount Analysis and Design
- Optical Enclosures
- Flight Hardware
- Harsh Environment Design
- Fiber Optic Mounting
- Custom Alignment Tooling Design
- Cryostatic Mechanisms
- SolidWorks and COSMOS software tools



# System Integration Experience



## **HARDWARE INTEGRATION**

- Cradle-to-grave system design and integration
- Rapid prototyping
- Optical alignment and assembly of complex systems including interferometers, telescopes, off-axis systems, aspheres.
- Troubleshooting of existing, in-situ systems via analysis or hands-on testing
- Able to build on-the-fly diagnostics, such as interferometers, electrical components and software for alignment or testing purposes
- Facility with alignment and optical testing equipment for prototyping and integration



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- Contrast was awarded a Phase I SBIR contract in July 2008
  - Navy contract number N66001-08-M-0176
  - “High-speed, multi-spool, fiber optic payout for undersea communication at depth”
  - Successfully completed January 2009
- Suggested topics for future AFRL SBIRs:
  - Implementation of a combined-FOV (wide/narrow) imaging system for simultaneous acquisition and tracking with a single FPA sensor (based on Contrast’s proprietary Fovegon® imaging lens)
  - Eliminating glint and other saturation sources during target acquisition and tracking (based on Contrast’s proprietary ECHO® camera system)
  - 360 degree surveillance acquisition/ tracking (based on Contrast’s proprietary Panoramic lens designs and ATP background)



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# Contrast Optical Contact Info



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