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## Steve Mulder

### Professional Experience

2014-present	Senior Systems Engineer, Synopsys
2012-2014	Senior Illumination Engineer, Photon Engineering
2009-2012	Senior Illumination Engineer, Cycloptics
2005-2009	Senior Illumination Engineer, Optical Research Associates
1999-2005	Optical Design and Programming Consultant, Cycloptics
1994-1999	Optical Engineer, Hallmark Technologies Incorporated
1989-1994	Optical Design Consultant, (Litton, Electrohome, Altech)
1988-1989	Optical Engineer & Configuration Manager, Ernst Leitz Canada
1984-1988	Optical Engineer, Litton Systems Canada Limited

### Education

1979-1983	Bachelor of Engineering Degree in Engineering Physics, McMaster University, Hamilton Ontario, Canada
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Mr. Mulder is a seasoned Design Professional, well versed in Illumination Design and Software Development. His experience spans a wide range, including flat panel displays, automotive lighting, industrial & instrumentation lighting, and area lighting for commercial and architectural applications. Mr. Mulder has developed software in C++ to automate the design of reflectors for illumination, and to integrate the work flow between CAD and ray trace software.

At Litton Systems in the mid 80's, he was involved in the design and development of LCD flat panels for avionics applications. This work involved designing and testing LCD panels, color filters and backlights to support color, contrast and night vision requirements.

While at Ernst Leitz, he designed color separation optics for LCD projectors, and adapted an Imax lens for a 3D cinema application. During his time at Leitz, he also served as Configuration Manager and implemented a Drawing Control System to military requirements.

Working as a consultant to Litton and Electrohome in the early 90's, he was active in the design of light valves for LCD projectors and LCD filters for color and night vision requirements. While working with Altech (Detroit, MI), he was involved in the design of interior and exterior automotive optics.

At Hallmark Tools, he supported the tooling and injection molding of automotive optics. He also designed and tested automotive optics, maintained and operated a 100' light tunnel test facility and developed software to automate the design of automotive reflex parts.

His work at Cycloptics involved the design of architectural, street and horticultural lighting, along with software development for reflector design. The software development at Cycloptics included a graphics card based implementation of Oliker's method, and the panelization of freeform surfaces.

At Optical Research Associates (2005-2009), Mr. Mulder completed a wide variety of illumination projects, demonstrating an ability to deliver solid design results on time and under budget. He was also involved in the development of LightTools macros, including a source array macro to model multiple LEDs.

In his time at Photon Engineering, he completed a number of illumination designs including architectural lighting, LED PAR lamps, light guides, indicators and machine vision projects. He is also involved in the development of software for NURBS applications, reflector design, and various illumination utility scripts.

In January 2014, Mr. Mulder joined Synopsys' Optical Solutions Group as a Senior Systems Engineer.

## Patents

US 6,010,233	Automobile headlamp reflector
US 6,856,389	Portable reflex comparator
US D682,462	Environmental chamber light cap
US D672,082	LED light

### Applications

20110170289	compact light-mixing LED light engine and LED lamp
20080174990	optical systems with segmented and/or flexible reflector

## Publications

"Designing Pillow Optics for Signal Lighting,"  
International Optical Design Conference (IODC), 2006.

"Shape and illumination as a function of path length,"  
SPIE Optics + Photonics Conference, 2007.

"Graphical Methods for Designing Optics in CAD",  
OSA Freeform Optics Conference, 2013.

## Professional Societies

Member, OSA	Optical Society of America
Member, SPIE	International Society for Optical Engineering