

DAVE AIKENS

35 Gilbert Hill Rd., Chester, CT 06412
860-526-2534 • daikens@savvyoptics.com

Optical System Engineer/Project Manager

A seasoned lens designer and project manager combining more than 20 years of expertise in optics, optical engineering, and optical systems development with extensive understanding of business. A creative, out of the box thinker with real-world experience at getting things done, and with a record of commercial savvy and success, who has designed IR, UV, microscopy, reconnaissance and precision coherent and incoherent optics instruments. Extensive experience in the areas of international optics business, mid-spatial frequency ripple, and surface imperfection tolerances.

Optics and Optical Technology • Fourier Domain Analysis • Imaging and Non-Imaging Systems
Surface Imperfections • Mid-spatial Frequency Ripple • Standards Compliance
Outsourcing/Asian Production • Product Portfolio Management • Product Development/Launch
P&L Responsibility • Engineering Management • Organizational Development

PROFESSIONAL EXPERIENCE

President – Savvy Optics Corp., Chester, Connecticut. • 2007 - present
(Privately Held Company; 1-10 employees; <\$1M)

Responsible for all corporate governance, as well as optical system design and engineering. Currently using Oslo, but facile with Zemax and Code V as well. Areas of specialization include precision optics for semiconductor metrology, UV and IR systems, and optics requiring extremely tight flatness, waviness, roughness, and surface imperfection tolerances.

Savvy Optics Corp. was founded in 2007 with the mission to facilitate commerce in the optics industry by offering products and services aimed at reducing confusion, conflict, and waste in optical specifications and drawings. From converting drawings to ISO 10110 format, to assisting with cost reductions through supply selection and specifications management, to educational services, we help our customers move from the design intent to manufacturable optics.

Director of Engineering - Zygo Corporation, Middlefield, Connecticut. • 2002 - 2007
(Public Company; 500-700 employees; \$150M-\$200M, ZIGO)

Responsible for all product development, design, release, and support for metrology products, a \$40-\$80M per year business. Managed a department of 60 engineers and designers and a budget of \$6M-\$10M per year. In addition, managed all business related to custom metrology solutions, a \$10M-\$15M engineering-intensive metrology P&L within the metrology business unit.

Participated in the design and release of virtually every metrology product in Zygo's current product portfolio. Released over 20 new systems to the marketplace in five distinct product families. Two of these product families (Z3D for Semiconductor Metrology and FPM for Flat Panel Metrology) have been made new business units to capitalize on the growth. Zygo's metrology products are extremely technically complex and challenging products to develop, requiring extensive technical contributions and risk management to develop.

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Some Zygo product highlights:

NewView 6300 This flagship product was released in 2004, with great success. Zygo has seen significant growth in NewView sales since its introduction, driven by superb quality, best-of-breed performance, and exceptional value through careful CGS management. The sensor head has been used as the basis for both the Z3D and FPM product lines to great success.

PTI 250 Launched in 2003, this design of a low-cost, small-aperture Fizeau Interferometer filled a critical gap in Zygo's Fizeau product line. Development required extensive partnering with off-shore suppliers and outsourced engineering.

VeriFire Asphere The VeriFire Asphere (VF-A) represents one of the greatest achievements in the world of optical test, allowing direct measurement of aspheric surfaces at TACT times under 5 minutes, allowing for in-cell metrology for aspheric lens manufacturing.

Some other significant successful products are **Z3D-7000, FPM Gen4** and **Gen5, NV600, VeriFire MST, GPI XP/D, GPI PE, NewView MPT**, and numerous accessories.

In addition to product development responsibility, I have personally managed the custom metrology solutions group, an internal P&L. During the past five years, we have grown this business significantly, through the skills of a very small, tight-knit team. Many of the systems were truly revolutionary, solving intractable technical problems through insight and creative thinking.

Engineering Manager, Optics - THERMA-WAVE, INCORPORATED, Milpitas, California • 2000-2002

(Public Company; 200-500 employees; TWAV; Semiconductors industry)

Manage all optical systems design and engineering across all products.

After joining in 2000, grew the optical engineering group from two people to six talented, motivated engineers and project leaders. In addition to managing the optical engineering department, personally led optics-centric projects related to Therma-Wave's Opti-Probe family of Semiconductor metrology products. This work required innovative optical and software solutions, and resulted in six granted patents (available on request). Led the entire product development effort for Therma-Wave's Optical CD measurement product family, based on both library and RCWA modeling approaches. Worked intimately with optical technologies such as ellipsometry, scatterometry, and reflectometry for the semiconductor manufacturing industry.

NIF Optical Engineering Manager - Lawrence Livermore National Lab • 1994 - 2002

(Government Agency; 9000-10,000 employees; Defense & Space industry)

Responsible for all optical system design and engineering for a \$1B, 10 year program to build a 192 beam laser system capable of generating 2 mega-Joules of laser energy for Fusion Research. Managed development of new optical polishing and manufacturing technologies to enable an outsourced production capacity scale up of more than 100x, for the more than 7,000 meter-scale

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optical components. Personally negotiated more than \$20M of contracts with LLNL suppliers of optics.

Participated in and led many teams and task-forces to overcome challenges at the forefront of science and technology. These teams developed an entirely new method of modeling, specifying, and measuring mid-spatial frequency ripple on optical components, implemented new international standards for optics, and designed state of the art optical systems and diagnostics for the largest and most powerful laser system ever to be constructed.

PRIOR EXPERIENCE

Senior Optical Engineer, KLA Instruments, San Jose, CA • 1992 - 1994

President, Dema Bekz Corporation (optical engineering consultancy), Portland, OR • 1990 - 1992

Optical Engineer, Lawrence Livermore National Laboratory, Livermore, CA • 1987 - 1990

Optical Engineer, Hughes Aircraft Company, El Segundo, CA • 1983 - 1987

EDUCATION

Master of Science in Optical Engineering (1984)
Bachelor of Science in Optical Engineering (1983)
Institute of Optics
University of Rochester, Rochester, NY.

PROFESSIONAL AFFILIATIONS

Past Chairman of the Board, Optics and Electro-Optics Standards Council
Head of American Delegation, ISO TC172/SC1
Member, American Standards Council

PUBLICATIONS, PATENTS

1 Refereed Journal Publication • 8 Patents • Numerous proceedings papers
Copies available on request