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WOLF

specializing in:
FORENSIC AND AEROSPACE ENGINEERING

James S. Sobek, P.E.

AREAS OF SPECIALIZATION

Expert analysis of automotive collisions, railroad grade crossing collisions, and other incidents involving physics, and mechanics of motion. Strong emphasis on human vision, lines-of sight, lighting, visibility under the influence of glare, darkness, fog, etc., stereoscopic depth perception, and other vision issues. Developer of analytical tools to determine illumination and visibility under locomotive headlamps. Aerial photography analysis including photogrammetric position determination of features shown therein.

EDUCATION

Wellsville High School, Wellsville, NY

1960 Duane H. Anderson Science Medal recipient

U.S. Navy:

Fire Control Technician "A" School

Weapons Designation System - 7 "C" School

Weapons Designation System - 9 "C" School

USAFI Physics Course

Electronics Refresher School

Cold Weather Survival School

AN/SPG-55A "C" School (Terrier Beamrider anti-aircraft missile)

AN/SPG-55B "C" School (Terrier Semi-active homing missile)

Thiel College, Greenville, PA

Bachelor of Arts Degree – June 1968

Major: Physics

Minors: Math/Chemistry

Languages: French & Russian

Overall GPA: 9.12 (Dean's List)

Advanced Level Courses:

Classical Lens Design – UCLA (Kingslake) – Aug 1968

Engineering Uses of Aerial Photography – IUPUI (Dr. Robert Miles) – 1970-71

Tribology (Wear and Lubrication) – IUPUI

FORTTRAN - Naval Avionics Center – 10/22/68

VAX 11/70 Operating System – Digital Equipment Corp.

Spread Spectrum Systems

Global Positioning System and Navigation Systems

Federal Railroad Administration Track Safety Standards
 HVE Seminar – 2002
 Highway-Rail Grade Crossing Safety 2012
 Ethical Decision Making for Engineers 1, 2, 3 & 4
 Highway Engineering 3: Driver, Pedestrian, Vehicle & Traffic Characteristics
 Better Roadway Design – Lane Assignment, Signals & Lighting
 Highway Engineering 5: Highway Traffic Engineering
 Indiana Engineers' Laws and Rules
 Geotechnology: Cartography, Mapping and Map Serving
 U.S. Biofuel Industry: Mind the Gap
 Responsible Outdoor Lighting
 Green Design: The Ethics of Green Design
 Essential Lighting: The Language, Metrics & Process of Lighting Design
 American National Standard Practice for Office Lighting
 Building Systems for Designers - Lighting Systems
 Daylighting 1: Fundamentals
 Daylighting 2: Occupant Productivity, Glazing Properties, & Electric Lighting
 Daylighting 3: Design Tools
 Daylighting in Design
 Lighting Calculations
 Parking Lots - Lighting
 Solar Electric Generation: Technologies
 Building for Senior Living: Acoustics & Lighting
 Building Systems for Designers - Introduction to Acoustic Design Principals
 Indiana Engineers Laws, Rules and Ethics – Revised for 2016
 Energy Efficiency – HID Lighting
 Energy Efficiency – LED Lighting
 Railroad Signal System Fundamentals
 Basics of Power Line Interference to Railroad Signal Systems
 Earthquakes and Tsunamis: Fundamental Concepts
 Residential Guide to Earthquake Design and Construction – Part 1
 Residential Guide to Earthquake Design and Construction – Part 2

WORK EXPERIENCE

AUGUST 2007 to PRESENT:

Clearly Visible Presentations, LLC

MANAGING PARTNER. Providing technical presentations in the fields of optics, lighting and visibility to the law enforcement, legal and professional communities.

JUN 2003 to 2011:

Physicist consultant for the CIA on digital image correlation systems for the Jasmine program, a guided parafoil payload delivery system under development.

JAN 1995 to PRESENT:

Wolf Technical Services, Inc., Indianapolis, IN

SENIOR ACCIDENT ANALYST: Specializing in automotive accident reconstruction with emphasis on analysis of lighting, optics, visibility/conspicuity, aerial photography, photogrammetry, and image processing. Analysis of

June 20, 2016

railroad grade crossing collisions and other railroad incidents. Computer models of railroad headlamp illumination, contrast, veiling glare, etc. Electronic signals analysis, particularly analog sound recordings.

OCT 1993 to JAN 1995:

Wolf Technical Services, Inc., Indianapolis, IN

TECHNICAL DIRECTOR: Responsible for the day-to-day operations of the company. Review and approval of forensics engineering work.

APR 1988 to OCT 1993:

Wolf Technical Services, Inc., Indianapolis, IN

SENIOR ACCIDENT ANALYST: Specialized in automotive accident reconstruction with emphasis on analysis of lighting, optics, visibility, aerial photography, photogrammetry, and image processing. Particularly heavily involved in analysis of railroad grade crossing collisions. Analysis of the physics issues of exterior ballistics, ladder dynamics, friction, etc. Broad scientific involvement.

JUN 1987 to APR 1988:

Naval Avionics Center, Indianapolis, IN

DSMAC PROGRAM MANAGER, D/906.2 (Electrical Engineer): Responsible for the production of Digital Scene Matching Area Correlator (DSMAC), the autonomous precision electro-optical missile guidance system currently used on the Navy's TOMAHAWK cruise missile. Also responsible for the design and development of the DSMAC IIA follow-on system.

DEC 1986 to JUN 1987:

Naval Avionics Center, Indianapolis, IN

ASSISTANT TO THE EXECUTIVE DIRECTOR, D/004 (Electrical Engineer)
Senior Management grooming position.

JUN 1986 to DEC 1986:

Naval Avionics Center, Indianapolis, IN

GLOBAL POSITIONING SYSTEM PROG. MGR., D/909 (Electrical Engineer)
Responsible for all GPS systems integration activities at the Center. Developed GPS equipment second-sources for the Joint Program Office.

OCT 1984 to JUN 1986:

Naval Avionics Center, Indianapolis, IN

DEPUTY PROG. MGR. NAV/INSTRUM/DISPLAYS, D/072.71 (Electrical Engineer)
Responsible for development, production, and maintenance of aircraft navigation and display components.

MAR 1983 to OCT 1984:

Naval Avionics Center, Indianapolis, IN

BRANCH MANAGER, D/925 (Electrical Engineer): Responsible for design, development, production and maintenance of system components of the Navy's television-guided Walleye missile system. Missile system trajectory and response to guidance inputs from pilots were important components of this work.

JUN 1968 to MAR 1983:

Naval Avionics Center, Indianapolis, IN

RESEARCH PHYSICIST, B/824 (Physicist): Co-inventor (see Patents section below) of the Digital Scene Matching Area Correlator (DSMAC) system, the precision electro-optical guidance system used on the Navy's TOMAHAWK cruise missile. Jointly responsible for the system engineering aspects of the DSMAC. Solely responsible for the system's electro-optical design and the image processing techniques used in preparing the

reference imagery. This work required the integration of the illumination requirements with the missile flight dynamics and the airframe's ability to respond to guidance inputs. Ballistic trajectory computations were a strong component of the work. Additional work was performed to create a digital link simulator for early TOMAHAWK guidance development. Developed a technique for using an early video tape recorder to record Ships Inertial Navigation System data directly from data ports.

Summers and Vacations, 1964 to 1967 while in college:

Robert Lewis, General Contractor, Alfred, NY

Assistant in all phases of general contracting work. Was offered a permanent position as partner.

AUGUST 1964 – JUNE 1968:

Student at Thiel College, Greenville, PA

JULY 1960 – JULY 1964:

U. S. NAVY, Honorable Discharge, FTM-2 (Missiles)

COMPUTER SYSTEMS

Proficient in PC-based systems, particularly: FORTRAN, BASIC, TK Solver, and web site design.

PUBLICATIONS

Digital Scene Matching Area Correlator by Jon R. Carr and James S. Sobek (SPIE Proceedings, July 1980, San Diego).

Numerous classified papers and presentations with the U.S. Navy on aerial imaging, reference image processing, and photogrammetry.

Three-Dimensional Computerized Photogrammetry and Its Application to Accident Reconstruction by Michael D. Pepe, James S. Sobek, and Gary J. Huett. (SAE 890739, March 1989).

The Accuracy of Three-Dimensional Computerized Photogrammetry as Demonstrated by Field Tests by James S. Sobek, Michael D. Pepe and D. Allen Zimmerman (SAE 930662, March 1993).

Predicting and Analyzing Vehicle Dynamics in a Train–Passenger Vehicle Collision Using EDSMAC by James S. Sobek and William E. Dickinson (HVE 2002 Seminar).

One-Way Light (or Applications of Polarized Light in Forensic Engineering) by James S. Sobek (MATAI Reference Points, August 2002).

Litigating the Shadows by James S. Sobek, P.E, & James R. Holland II, Esq. (Railroad Section, ATLA Annual Convention 2006, Seattle, WA).

Physics 101 for Trial Lawyers - Key Principles, Concepts and Laws of Engineering You Need to Know (and understand) in the Handling of Personal Injury and Wrongful Death Cases, Florida Justice Association, February 2007, Orlando, FL.

LICENSES

Registered Professional Engineer, Indiana License Number: PE60890004

PATENTS

Digital Scene Matching Area Correlator, electro-optical missile guidance system
(Secrecy order number 146,981; assigned to U.S. Navy)

Trucker Log Chek®, U.S. Patent No. 5,142,486

MEMBERSHIPS

Michigan Association of Traffic Accident Investigators (MATAI)

Optical Society of America (OSA)

Illuminating Engineering Society of North America (IESNA)

National Association of Railroad Safety Consultants and Investigators (NARSCI)

International Network of Collision Reconstructionists (on-line forum)

RTA – Investigators - International Collision Investigators Discussion List (on-line forum)

American MENSA

VOLUNTEER ACTIVITIES

Science Fair Judge: Shelby Southwestern Middle School, 1979 to 1983

Perry Meridian High School, 1983 to 1999

Science Olympiad Event Coordinator, Butler University, 1996 to present

President Watercolors Home Owners Association, 2008 to 2011

Member-at-Large Villas at Geist Home Owners Association 2011 to 2012

Communications Committee Chair, Villas at Geist HOA 2012 to present

Steward, Villas at Geist Little Free Library (# 27226)