Jianzhong Jiao, Ph.D.

750 Van Ness Avenue, Unit 805, San Francisco, CA 94102, 415-606-3322, j_jiao@hotmail.com

OUTLINE OF EXPERTISE

- Internationally recognized expert in the field of lighting, LEDs and light sources, optical and illumination engineering.
- Highly experienced with government relations, regulations, and specifications.
- Leader and major contributor for the LED and lighting industry standards development.
- Many years of leadership experience in major corporations for managing engineering, research, technology development, product design, testing, standards, compliance, technology and business strategies, intellectual property, academic and governmental interfaces.
- High technical skills in optical, electrical, mechanical engineering and computer applications, specializing in lighting and LED product design and development.
- Excellent communication and teaching skills.
- Experienced expert witness, technical and business consultant for lighting and LED related civil and intellectual property litigations, technology strategies, and financial investments.

EMPLOYMENT EXPERIENCE

09/2015 – Present San Francisco, CA

Consultant – JZJ Consulting, Inc.

Consultation for industry, government agencies, academia, and professional associations in the areas of LEDs, lasers, and lighting. Examples of recent projects:

- U.S. EPA Energy Star Lighting Program compliance.
- U.S. DOE Solid-State Lighting R&D project reviews.
- Laser headlamp and ADB technology development for a government sponsored project.
- Technology scouting, design review, and standard development for automotive OEMs, automotive lighting (tier-one) suppliers, and major LED manufacturers.
- Testing and evaluation standards compliance for photometry instruments manufacturers.
- Product compliance review for lighting manufacturers on behalf of the independent test labs.
- M&A strategies for automotive lighting (tier-one) suppliers.
- NIST Assessor for NVLAP accredited laboratories.
- Expert witness for IP disputes and litigations.

06/2007 – 09/2015 Sunnyvale, CA

Director – Regulations and Emerging Technologies, OSRAM Opto Semiconductors Inc. (www.osram-os.com, OSRAM Opto is one of the world-wide largest LED

companies, a subsidiary of OSRAM GmbH).

Responsibilities and Major Accomplishments:

- Functioned as company's NAFTA liaison for technology scouting and monitoring in industry, academics, and startups.
- Interfaced with academic and industrial consortium programs to present the company's positions and to collaborate product and technology development strategies with LED, laser, sensor, and lighting industry.
- Managed LED and lighting regulations and standards activities.
- As the company's representative, interfaced with U.S. governmental agencies such as U.S. DOE, DOT, EPA, and DOC, as well as state level authorities such as CEC, etc.
- Interfaced and participated in the U.S. professional, standard and trade organizations such as ANSI, SAE, IESNA, NEMA, UL, IEEE, JEDEC, SEMI, ASABE, CIE-USA, etc. to establish and revise industry standards relating to LEDs and lasers.
- Established strategies for the emerging technologies for LED and laser applications.
- Established company-wide system to integrate standard and regulation requirements into product development and quality management; transferred the engineering mentality and awareness from a high-tech semiconductors basis to lighting commodities; strategically placed the company's position in the standardization bodies.
- Managed the LED technology strategies and implementations in the fields of automotive, general illumination, horticulture, display, medical, defense, and others in the NAFTA market.

08/1993 – 06/2007 Farmington Hills, MI

General Manager (Previously Manager up to 10/1998) – Engineering Technology, North American Lighting, Inc. (www.nal.com, a primary and the largest automotive lighting supplier in North American and an affiliation of Koito www.koito.co.jp, the world-wide largest automotive lighting company).

Responsibilities and Major Accomplishments:

- Provided strategic planning for new technology implementation and new business development
- Established from ground zero and managed world-class engineering team consisting of four departments: Optical Design, Electronic Technologies, Engineering Analysis, and Regulation and Standards
- Assisted the company to grow and expand the US customer base and revenue from $100 million to a half billion, and made the company the largest US automotive lighting supplier.
- Investigated, identified and negotiated technology transfer and technology exchange with the foreign shareholder companies.
- Managed intellectual property protection including patent applications

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09/1989 – 08/1993 Troy, MI & Anderson, IN

Sr. Development Engineer & Project Manager – Advanced Development in Lighting, General Motors Corporation, IFG Division.

- Participated in and managed R&D projects in technology development to implement state-of-the-art technologies in automotive lighting applications.
- Led technology development projects including holograms, optical waveguides and light guides, fiber optics, non-imaging optics, computer-aided optical design, thermal analysis, LED, HID, neon and other new light source applications in the automotive lighting systems.

PROFESSIONAL EXPERIENCE – ACADEMIC/INDUSTRIAL

07/2019 – Present

Technology Advisory Board Member – Lucidity Lights, Inc.

To provide the company guidance with respect to its corporate, research and product development and marketing activities; to assist the company in the development and sale of commercial lighting products.

2007 – Present

Technical Advisory Penal Member – Strategies in Light

To provide technical advices for topics, paper reviews, and speaker invitations for Strategies in Light Conference.

01/2010 – 12/2018

Industry Advisory Board Member – Lighting Enabled System & Applications (LESA, formally Smart Lighting) Engineering Research Center (ERC)

The ERC was created in 2008 at Rensselaer Polytechnic Institute (RPI). Funded by the National Science Foundation and the State of New York, RPI works with core partners, Boston University and the University of New Mexico to investigate and develop light-emitting diode (LED) technologies that will one day change the way we illuminate our world. The ERC is a superb example of how academia, federal and state governments, and industry can work together to advance the state of science and engineering while creating new opportunities for students, faculty, and businesses.

03/2003 – Present

Instructor – Professional Seminars, SAE Continuing Education Programs.

Taught three college credited short courses both publicly and customer in-house:

- SAE Seminar C0202, "*Automotive Lighting I – Design & Technology*": Lighting fundamentals, design principles and new technologies, 2-days course.
- SAE Seminar C0618, "*Automotive Lighting II – Testing & Requirement*": Automotive lighting definitions, terminologies, testing, and requirements, 1-day course.
- SAE Seminar C0727, "*Automotive Lighting III – LED Application*": LED basics, LED measurements and standardization, LED automotive exterior and interior lighting design strategies and concepts, 1-day course.

01/2009 – 2012

Instructor – Short Course, SPIE – Society of International Optical Engineers.

Teaching college credited short course SC958 "*LED & Solid-State Lighting Standardization and Metrology*".

05/2011 – Present

Instructor – Workshop, Strategies in Light

Teaching workshop "*LED & LED Lighting Standards and Methods of Measurements*".

05/2010 – Present

Instructor – Short Course and Workshop, Light Fair International

Teaching college credited short courses "*LED & Solid-State Lighting Standardization" and "Methods of Measurements for LEDs*".

09/1992 – 06/1997 Southfield, MI

Faculty (Adjunct) – Department of Physics and Department of Electrical Engineering, Lawrence Technological University.

Taught undergraduate courses: non-calculus based and calculus based college physics including instructing laboratory experiments; taught undergraduate course: optical engineering.

09/1990 – 06/1992 Anderson, IN

Faculty (Adjunct) – Department of Physics, Purdue University Anderson Campus.

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Taught undergraduate courses: Physical Sciences including instructing laboratory experiments.

01/1985 – 09/1989 Evanston, IL & Troy, NY

Teaching Assistant/Research Assistant – Department of Electrical Engineering and Computer Science, Northwestern University, Evanston, IL; Department of Physics, Rensselaer Polytechnic Institute.

Assisted undergraduate courses in physics and electrical engineering, instructed laboratory courses, conducted problem solving sessions, graded homework and exams.

07/1983 – 12/1984 Beijing, China

Assistant Professor – Department of Applied Physics, Beijing Institute of Posts and Telecommunications.

Taught undergraduate courses: physical optics, modern optics including laboratory experiments.

EXPERT WITNESS EXPERIENCE

Experienced expert witness for litigations and IP disputes including inter parties review process for:

1. U.S. ITC Investigation No. 337-TA-1213, Certain Light-Emitting Diode Products, Fixtures, and Components Thereof.
2. U.S. ITC Investigation No. 337-TA-1195, Certain Electronic Candle Products, and Components Thereof.
3. Case No. IPR2020-01456, U.S. Patent 7,781,789, General Electric Company.
4. Case No. IPR2020-01457, U.S. Patent 9,240,529, General Electric Company.
5. Case No. IPR2020-01458, U.S. Patent 9,859,464, General Electric Company.
6. Case No. IPR2020-01459, U.S. Patent 10,217,916, General Electric Company.
7. Case No. CV 19-4047-PSG, Jiaxing Super Lighting Electric Appliance Co. Ltd. v. MaxLite, Inc.
8. Case No. IPR2020-00162, U.S. Patent 9,897,265, MaxLite, Inc. et al. v. Jiaxing Super Lighting Electric Appliance Co. Ltd. et al.
9. Case No. 3:19-cv-797, CHM Industries, Inc. dba Carolina High Mast v. Tristar Inc.
10. U.S. ITC Investigation No. 337-TA-3385, Light-Emitting Diode Products, Systems, and Components Thereof.
11. Case No. 2:18-cv-05664, Kuen Hwa Traffic Industrial Co. v. DNA Motor, Inc.
12. Case No. BC711451, Capital Lighting & Electric Supply of South Bay, Inc., Deco Enterprises, Inc. v. Envision LED Lighting, Inc.

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