

Nordine SOUAIDIA

August 18th 1978 – Single – French citizen

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ENGINEER / PHYSICIST
with specialization in
OPTICS & OPTRONICS

Educational Background:

Master's degree (With honors) - DESS – Grade de Maitre **2001-2002**
Université Jean Monnet – Saint Etienne (France)
Specialization: Instrumentation, Optics and Optronics.

Bachelor's degree - Sciences de la Matière (SM) **1997-2001**
Université Jean Monnet – Saint Etienne (France)
Majors: Physics, Chemistry and Mathematics.

Professional Experience:

Training Manager – OPTIS - France **2008-Present**
CAD-Embedded Optical Simulation Software Editor, www.optis-world.com

- **OPTIS** is world leader in CAD-Embedded optical simulations. Its photometric and visual ergonomics tools are developed within major CAD software tools. Its current catalog includes **SPEOS for Catia** (in Dassault Systems's Catia V5), **OptisWorks** (Embedded in SolidWorks) and **SPEOS for Pro/Engineer** (Newly available). OPTIS's software tools are currently being used by more than 2000 clients of the public and private sector worldwide. Those clients include DAIMLER, AUDI, NOKIA, AIRBUS, BOMBARDIER, FIAT, ALSTOM, RENAULT and many more. OPTIS's software tools are the answer to a growing need for **Virtual prototyping** and major development time & cost reduction.
- Due to the high level of optical knowledge required in OPTIS's software use, mandatory training is provided by OPTIS as part of its commitment to ensure optimal use of its tools by its customers. My task as **Training Manager** is to supervise the Training activity at OPTIS. This involves getting expert skills in the use of OPTIS's software along with that of major CAD software tools (**Catia V5, SolidWorks, Pro/Engineer**) being used by more than 95% of the industry. But also, answering to customers specific needs and providing frequently updated training material. And, finally, managing resources (Man power, infrastructures, ...).

- **Eurospace** is a technical consulting firm and offers services of its consultants to German companies in need of their expertise. I was therefore working at **Carl ZEISS SMT AG** on behalf of **Eurospace GmbH**.
- At **Carl ZEISS SMT AG**:
Work as an R&D Optical Engineer in the team in charge of Calibration/Validation and Qualification of optical instruments being delivered to **ASML** by Carl ZEISS. These instruments were mainly imaging systems being used in the qualification of **ASML's** lithographic equipment in Polarization and Intensity modes.
My task as **R&D Optical Engineer** consisted on the Design, Development, Test and Simulations of optical instruments. Thanks to my presence at every phase of the conception, this made me the ideal person to manage development of these instruments. I was therefore highly involved in the development of the latest generation of imaging systems.

Work on various NASA projects (Goddard Space Flight Center):

- **MODIS Polarization sensitivity analysis with ZEMAX and Code-V:**
Modeling of the **MODIS** earth observing satellite using ray tracing software. Application: Polarization measurements. This work allowed us to be able to correct satellite images. The next generation observation satellite **VIIRS** went through the same analysis. **MODIS** is, for example, used to monitor the track of hurricanes after they are born. This analysis was also performed using **Code-V** for validation.
- **Development of NURADS for polarization measurements:**
NURADS is a remote sensing instrument used in the frame of the Calibration/Validation campaign of **MODIS**. Its purpose is to validate Satellite data by taking simultaneous measurements at ground level. This instrument was upgraded in order to be able to perform polarization measurements. This type of data was never available and will be used to check models and also to correct past and future satellite images. NASA : **MODIS**, **SeaWiFS**, **VIIRS** ESA : **MERIS** CNES : **POLDER**
This instrument is being used during oceanographic cruises (**IFREMER** ...).
- Participation in many optical oceanography cruises.
BIOCOPE: Easter Island to Chile (South Pacific Ocean)
MOBY: Shore of Lanai (North Pacific Ocean, Hawaii)
BOUSSOLE: Coast of Nice (Mediterranean Sea)
POLRADS : Monterey Bay (California)
- In charge of the supervision of the **CIMEL** Sun-photometer installed in Dry Tortugas (Florida), this photometer is part of the **AERONET** (NASA) Global network.

Work on remote sensing projects:

- **Project in collaboration with NASA – SIMBIOS:**
Calibration of **SimbadA** using **SIRCUS** (New Laser-based calibration facility available at NIST). SimbadA is a radiometer used by NASA in the frame of their EOS program (Earth Observing System). This new calibration method allowed us to reduce the instrument's uncertainty budget. This leading to the optimization of atmospheric models. After publication of the results, NASA ordered the calibration of their CIMEL Sun-photometers using the same method.
- **Project ordered by NOAA (National Oceanic and Atmospheric Administration):**
Development of a new calibration source based on the use of multiple LEDs at various wavelengths. This source was a breakout in the remote sensing Calibration/Validation community. Indeed, this source is able to reproduce with very high accuracy spectra of any natural or artificial light. The primary application is for the calibration of "Ocean Color" measuring instruments. Being based on the use of 40 different groups of LEDs, we were able to reproduce any type of water color for various chlorophyll concentrations. Despite its primary application, the use of such a source in fields such as paint and cosmetics could be very beneficial.
- Instructor in photometry and radiometry during workshops "*Spectroradiometry short course*" offered by NIST to professionals of the industry (BOEING, Satlantic ...).
- Several visits and presentations at **NASA Goddard Space Flight Center (GSFC)**.

- Evaluation of the effects of multiple parameters acting in a photo-lithographic process. Manufacturing of optical diffraction gratings and their characterization using tools such as AFM (Atomic Force Microscope). This internship had for aim to acquire methods and experience specific to the engineer. Internship performed under the supervision of an engineer and two PhDs.

Publications:

MODIS Polarization ray tracing analysis,

N. Souaidia, D. Moyer, G. Meister, S. Pellicori, E. Waluschka, K. Voss

Proc. SPIE Int. Soc. Opt. Eng., **5888**, San Diego, CA, **July 31st - August 8th 2005**

Polarization Ray Trace Modeling of the MODIS Instrument

Waluschka, E., D. Moyer, N. Souaidia, K. Voss, X. Xiong, B. Guenther, W. Barnes, W. Esaias, S. Pellicori, and G. Meister

Proceedings of CALCON 2004, 2004

Ocean Optics Protocols For Satellite Ocean Color Sensor Validation

J.L. Mueller, S.W. Brown, D.K. Clark, B.C. Johnson, H. Yoon, K.R. Lykke, S.J. Flora, M.E. Feinholz, **N. Souaidia**, C. Pietras, T.C. Stone, M.A. Yarbrough, Y.S. Kim, R.A. Barnes

Volume VI: Special Topics in Ocean Optics Protocols, Part 2

Advances in Radiometry for Ocean Color

NASA/TM 2004 – February 2004

New Technologies for Radiometry: Impact on Ocean Color Research

B.C. Johnson, S.W. Brown, **N. Souaidia**, M.E. Feinholz, M.A. Yarbrough, S. Flora and D.K. Clark

International Symposium on Remote Sensing of Environment, November 10-14, **2003**, Honolulu, HI

Comparison of laser-based and conventional calibrations of sun photometers,

N. Souaidia, C. Pietras, G. Fargion, R.A. Barnes, R. Frouin, K.R. Lykke, B.C. Johnson, and S.W. Brown,

Proc. SPIE Int. Soc. Opt. Eng., **5155**, San Diego, CA, **August 3-8 2003**, 61-72.

Stray Light and Ocean Color

Brown, S.W., Johnson, B.C., **Souaidia, N.**, Barnes, R.A., and Clark, D.K.,

International Geoscience and Remote Sensing Symposium (IGARSS), Toulouse, France, July 21-25 **2003**.

SimbadA Calibration using a Laser Based Facility and Comparison with Previous Techniques

Nordine Souaidia, Steven W. Brown and B. Carol Johnson

SIMBIOS Project 2002 Annual, *NASA Technical Memorandum*

NASA/TM 2003-211622 – February 2003

Computer and Language skills:

- Expert skills in the use of **SPEOS for Catia**, **OptisWorks** and **SPEOS for Pro/Engineer**.
- Expert skills in the use of **Catia V5**, **SolidWorks** and **Pro/Engineer**
- Expert skills in the use of **Labview** (National Instrument's training)
- Expert skills in the use of **ZEMAX** and **Code V** (Optical Simulation Software)
- Programming skills in various languages (**C++**, **Visual Basic**, ...)
- Basic skills on **IDL** and **Matlab** (Programming software used in data and image processing)
- Basic skills on **3ds max** (3D design and animation software – Artificial rendering)
- Text and data processing: **Word**, **Excel**, **Kaleidagraph** et **Igor**.
- Advanced knowledge on computer systems hardware and high-tech components.
- Language skills:

English: Fluent (5 years in USA), **French:** Fluent (Mother tongue),

German: Good level (Previous experience in Germany), **Arabic:** Good level

Social life:

Sports: Karate (Shotokan Black Belt) - Team sports - Motorsports.

Hobbies: Motorsports (Mainly rallying). High performance Engine tuning. Computers & High Tech. Travel.

Miscellaneous: Easy going and adaptive individual.