

# CHONGFEI SHEN

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## WORK EXPERIENCE

### **2005-present TransVision Microsystems**

Founder and CTO: developed a novel MEMS infrared sensor, a manufacturable vacuum package, and a low cost high performance thermal imager (IR camera). Achieved product performance with 10x lower cost.

Directly involved in strategy, fund raising, product definition and roadmap, project management and scheduling, vendor evaluation, and team building.

### **2002-2005 Brion Technologies (Now ASML)**

Senior Application Engineer (2004-2005): provide pre- and post-sale technical support for photolithography simulation tools, including post-OPC and full process window RET design verification. Customers include Samsung, Micron, TI, STMicro, and UMC.

Staff Engineer (2002-2004): lead the post-processing and optical simulation of CCD imaging sensors for nanometer resolution applications. Designed and implemented the complete process flow. Transferred the fabrication process into production.

### **2001-2002 Agere Systems**

Member of Technical Staff (MTS): Developed key designs and processes for long wavelength Vertical Cavity Surface Emitting Lasers (VCSEL). Supported production of several semiconductor lasers and photodiodes for yield improvement.

## EDUCATION

### **1996-2001 Princeton University, Department of Electrical Engineering (PhD)**

**Major:** Electronic Materials and Devices

**Research:** Chemical and electrical properties of metal/organic semiconductor interfaces – applications in OLED and other organic devices.

### **1989-1994 Tsinghua University, Department of Physics (BS)**

**Research:** Magnetic Force Microscopy (MFM) study of electrolessly plated perpendicularly magnetized films

## PROFESSIONAL SKILLS

### **1. Device design, processing and packaging**

- Design of (opto)electronic and MEMS devices. Simulation of device electrical/optical/thermal/mechanical performance using Matlab, ANSYS and various simulation tools.
- Mask design and layout.
- Device processing including photo and ebeam lithography, thin film deposition, RIE, wet etch, PECVD, planarization, metallization, etc.
- MEMS packaging, developed a manufacturable vacuum packaging technique.

- Characterization techniques including surface profilometer, VECCO (Wyko), SEM, FIB, and AFM.
- Device testing including I-V, C-V, electroluminescence, etc.

## **2. Thin film design and processing**

- Optical coating design and fabrication, including antireflection coating, ultrahigh reflection coating, while considering thermal dissipation.
- Characterization techniques such as UV-Vis photospectroscopy, nanospec, OSA, and elliposometer.
- Stress engineering: multiple layer film stack design and manufacture to achieve desired curvature or stress -free film stack.
- Design and manufacture of thin film stacks for robust process window and high yield.

## **3. Surface and interface characterization / Vacuum systems**

- Extensive knowledge and hands-on experience in XPS, UPS, and AES.
- Design and maintenance of (ultrahigh) vacuum systems.

## **4. Cleanroom and foundry experience**

- Experienced user of the Stanford Nanofabrication Facility (SNF) and UC Berkeley Microlab.
- Working experience in industrial foundries.
- Extensive experience in transferring R&D prototypes into production.
- Familiar with DOE, SPC, and QA. Experienced user of JMP.

## **PUBLICATIONS**

11 technical publications in refereed journals

2 US and 3 international patent applications

1 book chapter

**US Permanent Resident**