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| |  |  | | --- | --- | | Texas Instrument Recruiting Team | September 29, 2012 | | 12500 TI Boulevard Dallas, TX75243,  U.S.A |  |  |  | | --- | | Dear Hiring Manager,  I am writing this letter to express my interest in the position of optical system engineer at Texas Instrument. I graduated with my master degree in this August, so I am ready to contribute my expertise to my first career. I have solid background in developing systems with DLP device. My thesis projects got sponsorship from Texas Instrument on 2012 Photonic West Conference. It focuses on adopting DLP as the display engine in holographic imaging system. I developed different phase-encoding algorithm and optical architecture that are suitable for DMD in different holographic system. The proposed methods enlarge the image display region and opened a possibility to adopt DMD in holographic display application without disturbing light source. My implementation of the proposed system familiarizes me with practical aspect of DLP products. These works got published in conferences My understanding and rich experience of DLP products make me an ideal candidate to your needs as an optical system engineer. | | My key strength can offer you:   * Hands-on experience on DLP device operation, alignment and testing. * Solid background and knowledge of DLP technology and related applications. * Modeling and implementation of optical system using DLP chips. * Familiar with programming and CAD software includes *Matlab*, *Labview* and *Sketch-up*. | | Besides to research experience on DLP system, I acquired knowledge of device manufacturing and DLP applications from various courses such as VLSI fabrication, III-V material fabrication and medical imaging. These courses expanded my understanding of DLP products from fabrication to application aspects.  Texas Instrument, as the origination of the DLP products, no doubt is my top choice to start my career. I favor optical system engineer not only because the position perfectly fit my expertise and interests, I also believe my familiarity with the products allows me to quickly get on the track and can better help customers with their specific needs. I am willing to learn new things and I would do my best to contribute the company. Since I started to work on DLP system, I’ve always hoped to have a chance to work for TI, therefore, I hope that you will favor my application, and be willing to consider the possibility of my employment at TI.  In the end of the letter, I’ve attached my resume for you. I thank you for your time and serious consideration on my application. Please feel free to contact me if you have further questions. I am looking forward to hearing from you.  Sincerely.    Sih Ying Wu Attached: Resume | |

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| Sih Ying Wu 3543 Greystone Drive, Apt# 2094, Austin TX78731  Phone: +1 512 921 8278, Email: sihyingwu@utexas.edu |

# Objectives:

* *Seeking a full-time position as an optical system engineer at Texas Instrument.*

# Educations:

## *The University of Texas, Austin, Texas* GPA 3.91/4.00 Aug, 2012

Master of Science in Electrical and Computer Engineering

## *National Chiao-Tung University, Hsin-Chu, Taiwan* GPA 3.97/4.00 2004-2008

### Bachelor of Science in Electrical Engineering

Courses

OPTICS, LASER ENGINEERING, PHOTONIC DEVICE, VLSI FABRICATION, PHOTOVOLTAIC DEVICE, MEDICAL IMAGING, OPTICAL COMMUNICATION, IMAGE PROCESSING, III-V MATERIAL FABRICATION.

# Experiences:

## Graduate Teaching Assistant *The University of Texas, Austin, Texas* 2010-2012

## Lead lab session and consulted for technical problems that were related to engineering design projects.

* Graded technical report and diagnose potential design flaws.

## Graduate Research Assistant *The University of Texas, Austin, Texas* 2010-2012

Responsible for various projects from concept to prototype; topics are closely related to Fourier optics, diffractive optical element (DOE) and imaging system using different spatial light modulator.

* Complex holographic image projection using two digital micromirror devices (DMD).
* Built the prototype of complex holographic image projection system with result analysis and verification.
* Holographic image projection using spatial light modulator
* Proposed interferometric approach and phase compression method to remove unwanted near-field zero-order diffraction (ZOD) with cost-effective computational loading.
* Performed mathematical modeling and simulation of the ZOD free holographic image projection; theoretical prediction of suppression ratio achieves 100% with little scarification of image quality.
* Built the prototype of ZOD holographic image projection system and the experimental suppression ratio reaches over 70%. (Error results from incompatibility of light source.)
* High precision beam shaping using digital micromirror device (DMD).
* Demonstrated 0.2-0.26% RMS errors of flattop and other slow-varying beam profiles.

## Research Assistant *Academic Sinica, Taipei, Taiwan* 2008-2010

Responsible for Labview programming, optical/electrical sub-module implementation and integration.

* Programmed an automation system that integrated electronic module with liquid crystal device and stepping motor to precisely control optical phase change.
* Constructed optical phase modulation and cooperated with senior co-worker to integrate the sub-module with the base system.

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# Skills

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| * **Programming:**   Matlab (Octave), Sketch-Up (CAD), Java   * **Operating System:**   Mac OS, Linux, Windows | * **Optical Related:**   Optical Design, Alignment, Testing; Laser and digital micromirror device (DMD) operation; Wave propagation simulation; Image processing algorithm, |

# Honors and Awards:

## *SPIE Student Travel Grant Awards, SPIE, San Francisco, CA* 2012

Sponsored by Texas Instrument for 2012 *Photonic West* conference.

## Graduate Engineering Council Travel Grant Award, *The University of Texas, Austin* 2011

Sponsored by Graduated Engineering Council for Frontier *of Optics* conferences.

## Best Class Image Processing Project (Poll), *The University of Texas, Austin* 2011

Implementation of template based eye-tracking system with aid of skin detection.

* **Stan Shih Fellowship,** *National Chiao Tung University, Hsin-Chu*  **2007-2008**

Scholarship for engineering students who volunteers to provide technology education

to senior high students.

* **Third Place of Creative Contest,** *National Chiao Tung University, Hsin-Chu* **2005**

Implementations of recolor algorithms on color space to help color blind seeing lost information.

* **Presidential Awards,** *National Chiao Tung University, Hsin-Chu* **2004-2005**

Top 5 % students in Electrical Engineering Department.

# Publications:

* **S. -Y. Wu**, J. Liang, and M. F. Becker, “Suppression of the zero-order diffraction beam from computer-generated holograms produced by a DLP spatial light modulator,” pp. 82540C–82540C–8, 2012.
* J. Liang, **S. -Y. Wu**, F. K. Fatemi, and M. F. Becker, “Suppression of the zero-order diffracted beam from a pixelated spatial light modulator by phase compression,” Appl. Opt., vol. 51, pp. 3294–3304, Jun 2012
* **S. -Y. Wu**, J. Liang, and M. F. Becker, “Suppression of the zero order diffracted beam for near field holographic projection by phase compression,” in Frontiers in Optics, p. FWJ3, Optical Society of America, 2011.
* J. Liang, **S. -Y. Wu**, R. N. Kohn, Jr., M. F. Becker, and D. J. Heinzen, “Bandwidth-limited laser

image projection using a DMD-based beam shaper,” pp. 82540M–82540M–7, 2012.