

Sih Ying Wu

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Profile:

- Recent MSEE grads with major focus on Optical engineering. 4+ years R&D and laboratory experience focus on optical system design/analysis/prototyping and algorithm development.
- Proficient in engineering software and tools ex: MATLAB, LabVIEW, Java, C/C++ and Solidwork.
- Wide background knowledge covers engineering essential in both theories and practices.
- Good interpersonal skills, can work as a team or work independently with minimum supervision.
- Bilingual (Chinese & English) with professional fluency and open to travel or relocation upon request.

Skills

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| <ul style="list-style-type: none">• Programming and Design:
MATLAB, LabVIEW, Java, C/C++, OpenCV, Solidwork, Sketch-Up.• Operating System:
Mac OS, Linux, Windows | <ul style="list-style-type: none">• Optical System Related:
Optical system design, alignment and testing; Visible to NIR laser operation, Optical properties simulation, Spectroscope, Oscilloscope, Image Processing Algorithm |
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Educations:

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| • The University of Texas, Austin, Texas | <u>GPA 3.91/4.00</u> | 08, 2012 |
| Master of Science in Electrical and Computer Engineering | | |
| • National Chiao-Tung University, Hsin-Chu, Taiwan | <u>GPA 3.97/4.00</u> | 2004-2008 |
| Bachelor of Science in Electrical Engineering | | |

Experiences:

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| <u>Graduate Research Assistant</u> | <i>The University of Texas, Austin, Texas</i> | 2010-2012 |
| <ul style="list-style-type: none">• Developed optical systems and algorithms using MATLAB, research topics are closely related to Fourier optics, diffractive optical element (DOE) and holographic image reconstruction.• Implementation of optical systems to experimentally analysis and validation of proposed algorithms.• The projects received 2012 Texas Instrument Student Travel Grant Award. | | |
| <u>Graduate Teaching Assistant</u> | <i>The University of Texas, Austin, Texas</i> | 2010-2012 |
| <ul style="list-style-type: none">• Graded engineering students' technical reports of senior design projects and diagnosed potential design flaws. (Over 80+ students) | | |
| <u>Research Assistant</u> | <i>Academic Sinica, Taipei, Taiwan</i> | 2008-2010 |
| <ul style="list-style-type: none">• System automation of ultrafast laser experiment using LabVIEW and MATLAB.• Integrated optical phase controlling modules using liquid crystal device and high precision stepping motor to achieve high resolution and flexible phase control.• Optical system and electronic circuit modules testing and troubleshooting.• Optical mechanic holder design and sketch using Solidwork. | | |
| <u>Undergraduate Research Assistant</u> | <i>National Chiao-Tung University, Hsin-Chu, Taiwan</i> | 2007-2008 |
| <ul style="list-style-type: none">• Developed of fast re-color algorithm with C++ to preserve the loss information for colorblind individual.• 3rd place of 2006 Creative Contest in National Chiao-Tung University. | | |
| <u>Mathematical Modeling Contest</u> | <i>National Chiao-Tung University, Hsin-Chu, Taiwan</i> | 2007 |
| <ul style="list-style-type: none">• Work as a team to developed solution to achieve minimum usage of surveillance camera to cover maximum area, verified proposed model using C++/C.• 1st place award among six final teams. | | |

Courses:

- **Optical Engineering:**

Optics, Lasers and Optical Engineering, Nonlinear Optics, Optical Communication, Solar Cell Physics, Medical Imaging Systems, Digital Image & Video Processing, Electromagnetics, Fiber Optics, Physical Optics.

- **Semiconductor Engineering:**

VLSI Fabrication and Labs, III-V material fabrication, Semiconductor Physics, Solid State Physics, Optoelectronic Device.

- **Programming:**

Programming with C/C++, Data Structure using C++/Java.

Projects:

- Research Projects (6+ publications):
 - Developed algorithm and system configuration for diffractive image reconstruction using programmable spatial modulator (MATLAB).
 - Demonstrated over 70% defect suppression ratio empirically in proposed holographic projection system using phase and binary modulators.
 - Implemented high precision beam shaping system and cooperated with physics department to conduct atom trapping (MATLAB & LabVIEW).
- Digital Image & Video Processing (EE371R):
 - Implemented human feature detections using different template based algorithms with aid of skin-color detection (MATLAB, OpenCV).
- Medical Imaging Systems (EE385J):
 - Implemented image reconstruction algorithms for CT, MRI and ultrasonic imaging systems.
- VLSI Fabrication Technical (EE396K):
 - Performed wafer fabrication process includes photolithography, deposition, wet/dry etching, mask developments.
 - Wafer inspection and troubleshooting using CV/IV measurements, refractive index measurement and Scanning Electron Microscopy (SEM).

Honors and Awards:

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| • SPIE Student Travel Grant Award , SPIE, San Francisco, CA | 2012 |
| • Graduate Engineering Council Travel Grant Award , The University of Texas, Austin | 2011 |
| • Best Class Image Processing Project (Poll), The University of Texas, Austin | 2011 |
| • Stan Shih Fellowship , National Chiao Tung University, Hsin-Chu | 2007-2008 |
| • Third Place of Creative Contest , National Chiao Tung University, Hsin-Chu | 2005 |
| • Presidential Awards (Top 5%) , National Chiao Tung University, Hsin-Chu | 2004-2005 |

Publications:

- **S. -Y. Wu** and M. F. Becker, "Encoding complex value using two DLP spatial light modulator" (Accepted to 2013 SPIE Photonics West Oral Presentation)
- Liang, **S. -Y. Wu**, R. N. Kohn, Jr., M. F. Becker, and D. J. Heinzen, "Gray scale laser image formation using a programmable binary mask", Opt. Eng. 0001; 51(10): 108201-108201. Doi: 10.1117/1.OE.51.10.108201.
- **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, Conference Proceedings, 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, Conference Proceeding, 2012.