Christopher Osterwise

Current Employment

L-3 Communications — Greenville, TX
Software Engineer — Jun 2013–Present

- Algorithm Design
- Design and implementation of graphical user interfaces for system debugging and data visualization
- Implementation and automation of test procedures

Education

Missouri University of Science & Technology — May 2013
Ph.D. in Electrical Engineering — GPA: 3.77 / 4.0
Emphasis in Signal Processing
Accepted into PhD program as BS graduate
Advisor: Dr. Steven L. Grant

University of Missouri, Rolla — May 2006
B.S. in Electrical Engineering — GPA: 3.94 / 4.0
B.S. in Computer Engineering
Graduated summa cum laude

Industry Experience

L-3 Communications — Greenville, TX
Software Engineer Internship — Jun 2012–Aug 2012

- Consolidated multiple algorithms into a diagnostic unit for proprietary hardware
- Designed additional algorithm to include in diagnostic unit for unhandled data type
- Implemented a simplified interface to produce desired outputs from a signal generator
- Automated the verification of manufacturer's specifications on new hardware

Research Experience

Missouri University of Science & Technology — Rolla, MO
Graduate Research Assistant

Blind Source Separation Project — April 2010–May 2013

- Separated recordings of multiple sound sources into individual signals of one source each
- Developed 3 separation techniques, including ICMD, which can separate any number of signals
- Formulated sparsity measure that better qualifies mixture environment for signals, which produced a better estimate of how a BSS algorithm is expected to perform

Immersive Audio Environment (IAE) Project — May 2010— May 2013

- Examined how people localize sounds, with and without auditory distraction
- Designed an integrated system capable of generating sounds anywhere on a dome, and recording participants' estimate of the sound's origin
- Performed experiments with over four-dozen participants

Melanoma / Basal Cell Classification Project — February 2009–July 2009

- Explored two possible methods by which to classify skin legions as either malignant melanoma or the more benign Basal Cell carcinoma by detecting visual features unique to the latter
- Enhanced the visibility of the image by using independent or principle component analysis to display the image in a higher-contrast pseudo-color
- Classified the carcinoma by looking in the RGB planes for artifacts that resembled the feature characteristics, and then classifying the image based on their grouping

General Dynamics Project — August 2007–April 2010

- Worked with team of 4 to 5 students and our corporate sponsors to design a product for the US Navy to analyze and neutralize electronic devices
- Designed and implemented a robust signal processing algorithm to observe electromagnetic emissions from a passive electronic device in a noisy environment
- Implemented a graphical user interface to measure, process, and display real-world emissions to the user in "soft" real time

Additional Experience

Missouri University of Science & Technology — Rolla, MO
Graduate Teaching Assistant — Jun 2008–July 2008

- Taught complete undergraduate course: EE243 – Communications Systems
- Substituted routinely for Dr. Steven Grant and Dr. Randy Moss in other courses

Missouri University of Science & Technology — Rolla, MO
Lab Technician — Jun 2005–May 2008

- Led a team of three students, under the supervision of Dr. Keith Corzine, to update electronic drive systems in the Power Systems Laboratory
- Installed 500 Watt DC motor drives, with necessary supporting circuitry
- Created intuitive user interface to control operations from a PC

Computer Skills

Matlab	LabVIEW	Verilog	Linux
C++	MS Office	Visual Basic	Assembly (8051)

Honors

Chancellor's Fellowship — Finley Fellowship
Best paper 2012 – Chancellor's Fellows Poster Presentation
Eta Kappa Nu (EE & CpE Honor Society) – Project Lab Chairman
Missouri Higher Education Scholarship (Bright Flight)
CLAD (Certified LabVIEW Associate Developer)

Interests

Computers	SCUBA	Swimming
Racquetball	Gaming	Bowling

Publications

- C. Osterwise, S. Grant, D. Beetner, "**Reduction of Noise in Near-Field Measurements**," *proc. of the 2010 IEEE International Symposium on Electromagnetic Compatibility*, July 2010. (Refereed)
- C. Paleologu, J. Benesty, S. L. Grant, C. Osterwise, "**Variable step-size NLMS Algorithms Designed for Echo Cancellation**," *Conference Record of the Forty-Third Asilomar Conference on Signals, Systems and Computers*, November 2009
- D. Beetner, D. Carhoun, A. Conrad, S. Grant, C. Osterwise, J. Tichenor, "**Verifying Neutralization of Electronically-Initiated Explosive Devices**," 2009 MSS Battlefield Survivability and Discrimination conference, Feb., 2009. (abstract refereed, but paper was not. Paper is classified).
- C. Stagner, C. Osterwise, D. Beetner, and S. Grant, "**Real-Time Detection of Radio Receivers Using Stimulated Emissions**," *proc. of the Research and Industrial Collaboration Conference*, Boston, MA, Oct. 2010
- C. Stagner, A. Conrad, C. Osterwise, D. Beetner, and S. Grant, "**A Practical Superheterodyne Receiver Detector Using Stimulated Emissions**," *Instrumentation and Measurement, IEEE Transactions on*, vol.60, no.4, pp.1461-1468, April 2011
- C. Osterwise, S. Grant, "**A Comparison of BSS Algorithms in Harsh Environments**," *proc. of the 2011 International Conference on Signal Processing, Communications and Computing*, Xi'an, China, Sep. 2011
- B. Cheng, W. V. Stoecker, C. Osterwise, et. al, "**Automatic Dirt Trail Analysis in Dermoscopy Images**," Skin Research and Technology. doi: 10.1111/j.1600-0846.2011.00602.x
- C. Osterwise, S. Grant, "**Effect of Frequency Oversampling and Cascade Initialization on Permutation Control in Frequency Domain BSS**," *proc. of the 2012 International Conference on Speech and Signal Processing*, Kyoto, Japan, Mar. 2012
- C. Osterwise, S. Grant, "**A New Permutation Control Method for Frequency Domain BSS**," *Asia-Pacific Signal and Information Processing Association, Annual Summit & Conference 2012*, 03-06 Dec. 2012. (Refereed.)
- C. Osterwise, S. Grant, "**On Over-Determined Frequency Domain BSS,**" *Audio, Speech, and Language Processing, IEEE Transactions on*, (under review)