

Mark Harvilla

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EDUCATION

CARNEGIE MELLON

PHD IN ELECTRICAL ENGINEERING
Completed Oct 2014 | Pittsburgh, PA
Advisor: Prof. Richard Stern
Thesis title: "Compensation for Nonlinear Distortion in Noise for Robust Speech Recognition"

MS IN ELECTRICAL ENGINEERING
Completed May 2013 | Pittsburgh, PA
Cum. GPA: 3.9 / 4.0

UNIVERSITY OF PITTSBURGH
BS IN ELECTRICAL ENGINEERING
Grad. August 2010 | Pittsburgh, PA
Cum. GPA: 3.8 / 4.0
Major GPA: 3.9 / 4.0
Summa cum laude

COURSEWORK

GRADUATE

Digital Signal Processing (TA)
Advanced Digital Signal Processing (TA)
Machine Learning
Machine Learning for Signal Processing
Pattern Recognition
Stochastic Processes

UNDERGRADUATE

Digital Signal Processing
Digital & Analog Filters
Software-Defined Radio
Digital Image Processing

SKILLS

PROGRAMMING

C • C++ • Matlab • Perl
Shell • \LaTeX • Git • HTML

MUSIC PRODUCTION

Logic Pro • Adobe Audition • Audacity
Celemony • Waves • IK Multimedia

MUSIC I'VE CO-WRITTEN AND PRODUCED

<http://soundcloud.com/thecatch>

MISCELLANEOUS

CMU Sphinx Speech Recognition
Visual Studio • NetBeans • MS Office
Mac OS X • Ubuntu • Windows

EXPERIENCE

VOCI TECHNOLOGIES | SPEECH ENGINEER INTERN

June 2013 – Present | Pittsburgh, PA

- Work on the Automatic Speaker Clustering System (ASCS) project.
- Develop and implement noise reduction algorithms in large C++ code base.
- Advise on & simulate relevant noise types to which the system should be robust.
- Run systematic experiments with the ASCS to gauge real-world performance.

CURTISS-WRIGHT EMD | ELECTRICAL ENGINEERING INTERN

Aug 2008 – Aug 2009 | Cheswick, PA

- Worked in silicone resin laboratory testing; analyzed and reported results of experiments on resin properties (e.g., viscosity) at varying temperatures.

CANADY TECHNOLOGY | INTERN

June 2005 – Sep 2005 | McKeesport, PA

- Worked as a high school intern alongside Dr. Jerome Canady, a transplant surgeon, at his start-up company focused on the development of his innovative plasma catheter.

RESEARCH

CMU ROBUST SPEECH GROUP | PHD CANDIDATE

Sep 2010 – Oct 2014 | Pittsburgh, PA

- Funded through the DARPA RATS project.
- Researched and developed algorithms to improve the performance of automatic speech recognition in noisy environments.

PUBLICATIONS

M.J. Harvilla and R.M. Stern, "Efficient Audio Declipping using Regularized Least Squares," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, April 2015 (under review)

M.J. Harvilla and R.M. Stern, "Least Squares Signal Declipping for Robust Speech Recognition," *INTERSPEECH*, September 2014

M.J. Harvilla and R.M. Stern, "Histogram-based Subband Power Warping and Spectral Averaging for Robust Speech Recognition under Matched and Multistyle Training," *ICASSP*, March 2012

S. Chaudhuri, **M. Harvilla**, and B. Raj, "Unsupervised Learning of Acoustic Unit Descriptors for Audio Content Representation and Classification," *INTERSPEECH*, August 2011

REFERENCES

Dr. Richard Stern | **Professor at Carnegie Mellon**
rms@cs.cmu.edu | 412.916.7386

Dr. Bhiksha Raj | **Associate Professor at Carnegie Mellon**
bhiksha@cs.cmu.edu | 412.268.9826

Dr. Kornel Laskowski | **Speech Engineer at Voci Technologies**
kornel.laskowski@vocitec.com | 412.996.3042