

MOSHE MISHALI

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March-2011

CURRICULUM VITAE

PERSONAL DETAILS

Home Address Segel-Zutar 2/12, Technion, Haifa 32000
Personal status Married+2.

EDUCATION

- Present **P.hd in Electrical Engineering (Direct Course)**
Technion – Israel Institute of Technology
Research Topic – “Sampling and Processing of Structured Signals at Sub-Nyquist Rates”
Supervisor – Prof. Yonina Eldar
Current average: 96.8
Graduation date: Mar. 2011.
- 1997-2000 **B.Sc, Summa Cum Laude, Electrical Engineering**
Technion – Israel Institute of Technology
Student of the Excellence Program
Main Topics: Signal Processing, Computer Networks, VLSI, Digital Communication.
Final average: 96.3

PROFESSIONAL EXPERIENCE

- 2005-Present **Technion, Department of Electrical Engineering**
PROJECT ENGINEER (Signal Processing Laboratory)
PROJECT ENGINEER (Communication Laboratory)
PROJECT ENGINEER (High-Speed Digital Signal Laboratory)
- 2008 **RobinMedical, Hardware Consultant**
HARDWARE CONSULTANT (Product hardware team)
- 2007 **Modu, Hardware Consultant**
HARDWARE CONSULTANT (Product hardware team)
- 2000-2005 **IDF, Research and Development Unit**
SENIOR PROFESSIONAL OFFICER (Design review and Failure analysis team)
PROJECT ENGINEER (DSP design in embedded environment)
- 1997-2000 **IDC, Intel Development Center, Haifa**
VLSI ENGINEER (Static and Dynamic verification, Timing Analysis)
UNIT ENGINEER (Design for Synthesis)
- 1995 **ISG, Israel Software Group, Haifa**
SOFTWARE DESIGN (Design for Verification and Testing)

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TEACHING EXPERIENCE

- 2006-Present **Lecturer and Teaching Assistant, Technion, Haifa**
Design of Computer Networks, 046335, *Undergraduate and Graduate course level*
- 2004 **Lecturer, Ort Singalivski college, Tel-Aviv**
Digital Communication, *B.Ed students course level*

JOURNAL PUBLICATIONS

- M. Mishali and Y. C. Eldar, "Blind Multi-Band Signal Reconstruction: Compressed Sensing for Analog Signals", *IEEE Trans. on Signal Processing*, vol. 57, no. 3, pp. 993-1009, March 2009.
- M. Mishali and Y. C. Eldar, "Reduce and Boost: Recovering Arbitrary Sets of Jointly Sparse Vectors", *IEEE Trans. on Signal Processing*, vol. 56, no. 10, pp. 4692-4702, October 2008.
- Y. C. Eldar and M. Mishali, "Robust Recovery of Signals From a Union of Subspaces", *IEEE Trans. on Information Theory*, vol. 55, no. 11, pp. 5302-5316, November 2009.
- M. Mishali and Y. C. Eldar, "From Theory to Practice: Sub-Nyquist sampling of Sparse Wideband Analog Signals", *IEEE Journal of Selected Topics on Signal Processing*, vol. 4, no. 2, pp. 375-391, April 2010.
- M. Mishali, Y. C. Eldar and A. Elron, "Xampling: Signal Acquisition and Processing in Union of Subspaces", *CCIT Report #747 Oct-09, EE Pub No. 1704*, EE Dept., Technion - Israel Institute of Technology; [Online] *arXiv 0911.0519*, Oct. 2009.
- M. Mishali, Y. C. Eldar, O. Dounaevsky and E. Shoshan, "Xampling: Analog to Digital at Sub-Nyquist Rates", *IET Circuits, Devices & Systems*, vol. 5, no. 1, pp. 8-20, Jan. 2011.
- M. Mishali and Y. C. Eldar, "Sub-Nyquist Sampling: Bridging Theory and Practice", *submitted*; Apr. 2010.
- M. Mishali and Y. C. Eldar, "Wideband Spectrum Sensing at Sub-Nyquist Rates", *to appear in IEEE Signal Processing Magazine*.

CONFERENCE PUBLICATIONS

- M. Mishali and Y.C. Eldar, "The Continuous Joint Sparsity Prior for Sparse Representations: Theory and Applications," *2nd International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP 2007)*, pp. 125-128, Dec. 2007.
- M. Mishali and Y. C. Eldar, "Spectrum-Blind Reconstruction of Multi-Band Signals," *IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP 2008)*, pp. 3365-3368, April 2008.
- M. Mishali and Y. C. Eldar, "The ReMBo Algorithm: Accelerated Recovery Performance of Jointly Sparse Vectors", appear in *EUSIPCO '08*.
- M. Mishali, Y. C. Eldar and Joel A. Tropp, "Efficient Sampling and Stable Reconstruction of Wide Band Sparse Analog Signals", *Proc. of IEEE, 25th convention*, pp. 290-294. **Best student paper award.**
- M. Mishali and Y. C. Eldar, "Sparse Source Separation from Orthogonal Mixtures", *IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP 2009)*, pp. 3145-3148, April 2009.
- M. Mishali and Y. C. Eldar, "Low-rate Wideband Receiver", *Proceedings of the 2009 Workshop on Sampling Theory and Applications (SampTA'09)*, May 2009.
- Y. C. Eldar and M. Mishali, "Block Sparsity and Sampling over a Union of Subspaces", *Proc. of IEEE 16th International Conference on digital signal processing (DSP)*, pp.1-8, July 2009.
- M. Mishali and Y. C. Eldar, "Expected RIP: Conditioning of The Modulated Wideband Converter", *Information theory workshop (ITW)*, pp. 343-347, October 2009.

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- M. Mishali, A. Elron and Y. C. Eldar, "Sub-Nyquist Processing with the Modulated Wideband Converter", *IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP 2010)*, pp. 3626--3629, March 2010.
- Y. Chen, M. Mishali, Y. C. Eldar, and A. O. Hero III, "Modulated wideband converter with non-ideal lowpass filters", *IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP 2010)*, pp. 3630--3633, March 2010.
- M. Mishali and Y. C. Eldar, "Xampling: Analog Data Compression", *DCC 2010*, pp. 366--375, June 2010.
- M. Mishali, Y. C. Eldar, O. Dounaevsky and E. Shoshan, "Sub-Nyquist Acquisition Hardware For Wideband Communication", *appeared in SiPS2010*.
- M. Mishali, R. Hilgendorf, E. Shoshan, I. Rivkin and Y. C. Eldar, "Generic Sensing Hardware and Real-Time Reconstruction for Structured Analog Signals", *to appear in ISCAS'2011*.

BOOK CHAPTERS

- M. Mishali and Y. C. Eldar, "Xampling: Compressed Sensing of Analog Signals", *to appear* as chapter no. 3 in a book "Compressed Sensing: Theory and Applications", edited by Yonina C. Eldar and Gitta Kutyniok, Cambridge, 2011.

INVITED TALKS

- "Pirate Radio Stations Discovery: An application of blind Reconstruction of Multi-Band Signals", inter-disciplinary graduate students seminar, May 2008.
- "Spectrum-Blind Reconstruction of Multi-Band Signals", Refael, Oct 2008.
- "The Nyquist Theorem From the Hindsight of Generations – Recent Developments and Practical Considerations in the Design of a Sampling System", Convention & Trade Exhibiton for Developers & Engineers in the Electronics Industry, Dan-Panorma hotel, Tel-Aviv, Oct 2008.

PROFESSIONAL ACTIVITIES

- Signal Processing and Systems (SPS) weekly seminar at EE department, *coordinator*.

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PROJECTS

- K. Rosenblum and M. Mishali, "Compressive sensing toolbox for MATLAB", Signal processing laboratory, SIPL, Spring 2007.
- S. Azulai, M. Grobman and M. Mishali, "Blind sampling and reconstruction of multi-band audio signals", Signal processing laboratory, SIPL, Winter 2008.
- M. Grobman, A. Stup and M. Mishali, "Circuit Implementation of Frequency Scanner", ComLab, Spring 2008.
- O. Lindenbaum, R. Vitek and M. Mishali, "Blind Source Separation from Orthogonal Mixtures", SIPL, Winter 2009.
- O. Greenberg, D. Kichin and M. Mishali, "Sub-Nyquist Digital Architecture", HS_DSL, Winter 2010.
- M. Award, A. Bishara and M. Mishali, "Sub-Nyquist Reconstruction: Expander", HS_DSL, Winter-Spring 2010.
- Y. Smolin and M. Mishali "Sub-Nyquist Reconstruction: Support Recovery", HS_DSL, Winter-Spring 2010.
- D. Primor, O. Kislov and M. Mishali, "Sub-Nyquist Reconstruction: DSP", HS_DSL, Winter-Spring 2010.
- P. Vilner, E. Weinberg and M. Mishali, "Digital 2 GHz High-Speed Binary Sequencer", HS_DSL, Spring 2010.

AREAS OF INTEREST

- Sampling theory
- Advanced compressive sampling techniques
- Information theory
- Computer networks
- Analog and RF design

AWARDS

- Adams fellowship 2010-2011
- Daniel scholarship 2009
- Miriam and Aaron Gutwirth memorial fellowship 2008
- Hershel Rich innovation award for 2008
- Benin scholarship for year 2007 of the Jewish agency for Israel and the New York Federation
- Jury award for excellence graduate students 2007
- Graduate School Master scholarship, Technion 2005
- Excellent Officer, Israel Army - R&D department, 2003
- Technion President award for excellence, 1997-2000