

Abdolreza Abdolhosseini Moghadam

CONTACT INFORMATION

Waves Lab

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RESEARCH INTERESTS

Compressed Sensing, multimedia signal (image and video) processing, coding theory, analytic combinatorics, frame theory.

EDUCATION

Michigan State University, East Lansing, MI, USA.

Ph.D., Electrical Engineering (expected graduation date: 2011)

- Thesis Topic: *Combinatorial Methods For Compressed Sensing*.
- Adviser: Professor Hayder Radha

Sharif University of Technology, Tehran, Iran.

M.S., Computer Engineering, 2003-2006

- Thesis Topic: *Designing an Scalable Overlay Protocol*.
- Adviser: Professor Hamid Reza Rabiee

B.S., Computer Engineering, 1999-2003

- Thesis Topic: *Implementing a Multicast Video Proxy Server Using Intel IXP1200 Network Processor*.
- Adviser: Professor Hamid Reza Rabiee

AWARDS AND ACHIEVEMENTS

- Filed two patents during my summer internship in Eastman Kodak, summer 2011 (Docket No. K000877US01/KES, United states Application Serial No. 13/413,962 and Docket No. K000878US01/KES, United states Application Serial No. 13/413,982).
- Filed a U.S. Provisional Application, PU100198 (IU100197), during my summer internship in Technicolor (Thomson), summer 2010.
- An under review patent (TEC2010-0108) in Michigan State University Technologies.
- Top 10 paper award in IEEE Multimedia Signal Processing conference, 2010.
- Ranked 31st among more than 350,000 applicants in the Iranian Nationwide University Entrance Exams (Konkooor), 1999.
- Ranked 38th among more than 100,000 graduate applicants in the Graduate Iranian Nationwide University Entrance Exams (Arshad Konkooor), 2003.

ACADEMIC EXPERIENCE

Michigan State University, East Lansing, MI, USA.

Research Assistant

May 2007 - Present

- Four years of experience as a research assistant in Michigan State University (Partially funded by NSF and Kodak).

Sharif University of Technology, Tehran, Iran.

Research Assistant

Fall 2003 - Fall 2006

- Three years of experience as a research assistant in Digital Media Lab, at Sharif University of Technology, Tehran, Iran.

- As a research assistant in Dependable System Lab, at Sharif University of Technology, Tehran, Iran.

PUBLICATIONS

- Abdolreza Abdolhosseini Moghadam, Mohamad Aghagolzadeh, Mrityunjay Kumar and Hayder Radha, “*A compressive framework for demosaicing of natural images*”, under review in IEEE transaction on Image Processing.
- Abdolreza Abdolhosseini Moghadam and Hayder Radha, “*Combinatorial approaches to Compressed Sensing*”, under preparation for submission to IEEE transaction on Signal Processing.
- Abdolreza Abdolhosseini Moghadam, Mrityunjay Kumar and Hayder Radha, “*Common and Innovative Visuals (CIV): a sparsity modeling framework for video*”, under preparation for submission to IEEE transaction on Image Processing.
- Mohamad Aghagolzadeh, Abdolreza Abdolhosseini Moghadam, Mrityunjay Kumar and Hayder Radha, “*Compressive demosaicing for periodic color filter arrays*”, IEEE International Conference on Image Processing (ICIP’11), September 2011.
- Mohamad Aghagolzadeh, Abdolreza Abdolhosseini Moghadam, Mrityunjay Kumar and Hayder Radha, “*Bayer and panchromatic color filter array demosaicing by sparse recovery*”, SPIE, Digital Photography, 2011.
- Abdolreza Abdolhosseini Moghadam, Mohamad Aghagolzadeh, Mrityunjay Kumar and Hayder Radha, “*Incoherent Color Frames for Compressive Demosaicing*”, IEEE ICASSP 2011.
- Abdolreza Abdolhosseini Moghadam, Mohamad Aghagolzadeh, Mrityunjay Kumar and Hayder Radha, “*Compressive Demosaicing*”, IEEE MMSP 2010 (top 10 paper award).
- Abdolreza Abdolhosseini Moghadam and Haydar Radha, “*Hybrid Compressed Sensing*”, IEEE MMSP 2010.
- Abdolreza Abdolhosseini Moghadam and Haydar Radha, “*Complex Sparse Projections for Compressed Sensing*”, IEEE Conference on Information Sciences and Systems (CISS10), Johns Hopkins University, Baltimore, MD, USA.
- Abdolreza Abdolhosseini Moghadam and Haydar Radha, “*Complex Randomness-in-Structured Projections for Compressed Sensing*”, in Proceedings of IEEE International Conference on Image Processing (ICIP09), Egypt.
- Abdolreza Abdolhosseini Moghadam and Haydar Radha, “*Practical Compressed Sensing with Log-of-Prime Projections*”, in Proceedings of Conference on Information Sciences and Systems (CISS09), Johns Hopkins University, Baltimore, MD, USA, March 18-20,2009.
- Abdolreza Abdolhosseini Moghadam, H. R. Rabiee, M. Ghanbari, “*E-Nice: an enhanced NICE*”, The 2006 International Symposium on Frontiers in Networking with Applications in conjunction with The IEEE 20th International Conference on Advanced Information Networking and Applications, Vienna, 18-20 April 2006.
- Abdolreza Abdolhosseini Moghadam, S. Barghi, H. R. Rabiee, M. Ghanbari, “*A new scheme on recovery from failure in NICE overlay protocol*”, IEEE P2P Information Management 2006, Hong Kong, 29 May 2006 .

PROFESSIONAL
EXPERIENCE

Eastman Kodak, Rochester, NY, USA

Intern

Summer 2011

- Designing a sparsity based model for video contents.
- Filed two patents: Docket No. K000877US01/KES, United states Application Serial No. 13/413,962 and Docket No. K000878US01/KES, United states Application Serial No. 13/413,982.

Technicolor (Thomson), Princeton, NJ, USA

Intern

Summer 2010

- Utilizing recent results on the problem of affine constraint rank minimization for video encoding
- Filed U.S Provisional Application PU100198 (IU100197).

Advanced Communication and Telecommunication Center (AICTC), Tehran, Iran

System Designer and developer

Summer 2003 - Winter 2005

- Linux thin-client: A diskless, cheap Linux terminal, with the features of booting from the network and running the operating system and applications on the server side.
- Linux Set-Top-Box: A cheap Linux terminal capable of receiving Digital Video Broadcast Terrestrial signals.

Semiconductor Industry of Iran, Tehran, Iran

System Designer

Summer 2003 - Winter 2004

- Design and implementing an embedded real time system based on RTAI Linux.

Teaching Experience

Fall 2003

- Teaching “Operating Systems” in Semiconductor Industry of Iran, Tehran, Iran.

Winter 2003

- Teaching “Real Time Systems” in Semiconductor Industry of Iran, Tehran, Iran.

Winter 2003

- Workshop on “Linux device driver and interrupt handler programming” in Semiconductor Industry of Iran, Tehran, Iran.

Signal Co. (Supervised by Dr. Kambiz Nayebi), Tehran, Iran

Intern, Verilog developer

Summer 2001

- As a trainee, I was a member of Verilog developer team in implementing a robust video coder.

TECHNICAL SKILLS Extensive experience in **MATLAB** and familiar with Mathematica

Programming: C, C++ and UNIX shell scripting.

Operating Systems: Linux, RTLinux, RTAI, DOS and Microsoft Windows family.

Computer Applications: \TeX and most common productivity packages (for Windows and Linux platforms).

Embedded Systems: Software and hardware development with several platforms.

Hardware and software experience in networking and network processors.

Network simulator tools : Professional in Omnet++, familiar with NS.

HDL Programming : VHDL and Verilog HDL.

Designing Hardware Systems using MAX-PLUS, OrCAD, PSPICE and Modelsim

Computer-Aided Design: MAX-PLUS, OrCAD, PSPICE and Modelsim.

MATHEMATICAL
EXPERTISE

Information Theory, Algebra and Linear Algebra, (Channel) Coding Theory, Frame Theory, Analytical Combinatorics, Probability Theory and Random Processes, Graph Theory, Convex Optimization and familiar with Complex Analysis.

REFERENCES

Hayder Radha, Professor of Electrical and Computer Engineering at Michigan State University, East Lansing, MI, USA radha@msu.edu.

More references would be available upon request.