Igor Fedorov

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Education

University of California, San Diego   San Diego, CA
- *Ph.D in Electrical Engineering; GPA:4.0*   *August 2014 - May 2017*

  Advisors: Bhaskar D. Rao and Truong Q. Nguyen

University of Illinois at Urbana-Champaign   Urbana-Champaign, IL
- *M.S. in Electrical Engineering; GPA:3.78*   *Aug 2012 - May 2014*
  Advisor: Pierre Moulin

University of Illinois at Urbana-Champaign   Urbana-Champaign, IL
- *B.S. in Electrical Engineering; GPA:3.90*   *May 2012*
  James Scholar, Highest Honors

Academic Experience

- **Robust Face Recognition**   San Diego, CA
                                                                        Jan. 2015-Present

  – Developed novel face recognition algorithm for classifying faces under extremely adverse conditions

- **Rectified Sparse Bayesian Learning**   San Diego, CA
                                                                       July. 2015-Present

  – Extended sparse bayesian learning framework to non-negative data
  – Formulated a Bayesian solution to the sparse non-negative least squares problem

- **Speech enhancement**   San Diego, CA
                                                                    Sept 2014 – Feb. 2016

  – Developed novel multi-channel audio denoising system

- **Kinect Depth Video Compression for Action Recognition**   Urbana-Champaign, IL
  Master's Thesis   *August 2012 – May 2014*

  – Investigated source coding algorithms for purposes of compressing depth videos while minimizing action recognition performance losses
  – Developed novel depth coding algorithm using supervised clustering

- **Computer Vision**   Urbana-Champaign, IL
  Research   *January 2013 – March 2013*

  – Formulated and implemented algorithm to perform atomic human activity recognition using a depth sensor
  – Algorithm matched state of the art accuracy levels

- **Graduate Coursework**   Urbana-Champaign, IL
  Courses   *Aug 2012 – May 2013*

  – Vector space signal processing, computer vision, pattern recognition using neural networks, compressive sensing, random processes, information theory, digital signal processing II

- **Teaching Assistant**   Urbana-Champaign, IL
  Senior Design   *Aug 2012 – May 2014*

  – Oversaw 8 teams per semester of undergraduate electrical engineering students as they completed their capstone projects
  – Head TA for Spring 2014 semester

- **Honors Project Under Supervision of Prof. Paris Smaragdis**   Urbana-Champaign, IL
  Course   *Sep 2011 – Dec 2011*

  – Worked on algorithm to change the timbre of a vocal recording using source-filter model
  – Worked on vocal source separation algorithm using stereophonic effects

Industry Experience

- **Qualcomm** San Diego, CA
  Intern *May 2015 – Present*
  - Developing continuous multi-modal authentication system for verifying mobile user's identity

- **Qualcomm** San Diego, CA
  Intern *May 2013 – Sept. 2014*
  - Implemented Fast Stereo Independent Vector Analysis (IVA) algorithm in MATLAB
  - Developed a real time version of Fast Stereo IVA
  - Currently working on a real-time fixed-point C implementation of Fast Stereo IVA

- **Qualcomm** San Diego, CA
  Intern *Jun 2012 – Aug 2012*
  - Introduced and implemented novel speech processing techniques (NMF) into existing corporate effort
  - Designed Voice Activity Detector (VAD) using NMF
  - Developed a rapid prototype for NMF VAD in MATLAB
  - Collaborated with subject matter experts, including an assessment of embedded adaptation of NMF VAD
  - Investigated real-time and normalized variants of NMF
  - Implemented Boll spectral subtraction algorithm in fixed-point C

- **Cisco** San Jose, CA
  Intern *Jun 2011 – Aug 2011*
  - Implemented testing framework from the ground up for NX-OS
  - Contributed to system test and integration efforts

- **ComEd** Libertyville, IL
  Intern *Jun 2010 – Aug 2010*
  - Worked with Transmission and Substation Department in the Testing Group
  - Participated in testing of power equipment

Publications

- I. Fedorov, R. Giri, B.D. Rao, T.Q. Nguyen, "Robust Bayesian Method for Simultaneous Block Sparse Signal Recovery with Applications to Face Recognition." (Submitted) 2016 International Conference on Image Processing.

- A. Nalci, I. Fedorov, B.D. Rao. "Rectified Gaussian Scale Mixtures and the Sparse Non-Negative Least Squares Problem." (Submitted) IEEE Transactions on Signal Processing, 2016.

- I. Fedorov, "Kinect depth video compression for action recognition," Master's thesis, 2014

- A. Khosrowpour, I. Fedorov, A. Holynski, J.C. Niebles, and M. Golparvar-Fard, "Automated Worker Activity Analysis in Indoor Environments for Direct-Work Rate Improvement from long sequences of RGB-D Images," *2014 Construction Research Congress*, May 2014.

- P.S. Shenoy, I. Fedorov, T. Neyens, P.T. Krein, "Power delivery for series connected voltage domains in digital circuits," *2011 International Conference on Energy Aware Computing (ICEAC)*, pp. 1-6, IEEE, 2011

Skills

Matlab, C/C++, Fixed point C, LaTex, Fluent in Russian

Honors and Activites

ARCS Fellowship 2015-2016
ECE Departmental Fellowship, University of California, San Diego, 2014-2015
Jules D. Falzer Scholarship for outstanding scholastic record, University of Illinois, 2012
Member of Phi Eta Sigma: National Honor Society, Spring 2009-Present, University of Illinois
University of Illinois Club Tennis Member, Fall 2008 - May 2014