Hojjat Seyed Mousavi

Contact

Homepage: www.personal.psu.edu/hus160

✉E-mail: hus160@psu.edu

✉E-mail: hojjatseyedmousavi@gmail.com

Research Interests

- **Computer Vision and Machine Learning**: Robust image classification using probabilistic graphical models and structured sparse representations
- **Sparse Recovery and Representation methods**
- **Convex Optimization**

Education

The Pennsylvania State University, University Park, PA, USA 2012 - 2017 (expected)

- Ph.D. in Electrical Engineering and Computer Science, GPA: 3.93/4.00 - via 44 credits
- Graduate level coursework: Computer Vision, Digital Image Processing, Neural Networks, Probability and Random Processes, Statistical Signal Processing, Detection and Estimation Theory, Real Analysis, Complex Analysis, Numerical Linear Algebra, etc.
- Advisor: Prof. Vishal Monga

Sharif University of Technology, Tehran, Iran 2007 to 2012

- B.Sc. in Electrical Engineering, GPA: 16.95/20 - via 140 credits
- Thesis: " Imaging Structure Design And Implementation of Pre-Processing Software for Chromosome Medical Images", *advisor: Prof. Khalaj*

Technical Skills

- *Programming Languages:* C/C++, Python, Assembly.
- *Technical Software:* Matlab, OpenCV, Simulink.

Honors and Awards

- **Top 10% paper award** at International Conference on Image Processing (ICIP), October, 2014
- **Grand Prize:** Dow Sustainability Innovation Student Challenge Award (SISCA), for the project Leafy: Leaf Water Content Sensor for Optimizing Irrigation Water Consumption. December 2014.
- **Two year Scholarship** of College of Engineering, The Pennsylvania State University, Fall 2012 - Spring 2014
- **Ranked 1st** for bachelor design Project out of 200 B.Sc. students in Electrical Engineering Department, class of 2007, Sharif University of Technology
- **Awarded Deans Honor** by Prof. S. Sohrabpour, the president of Sharif University of Technology, 2007
- **Ranked 16th** out of 350,000 applicants in the National Universities Entrance Exam for B.Sc. degree, 2007

Research Experience

- **Information Processing and Algorithm Laboratory (iPAL)**, School of Electrical Engineering and computer science, The Pennsylvania State University, *Supervisor: Prof. V. Monga.* Sparse Representations for Image Representation: Applications in color medical imaging and visual object classification and recovery Fall 2012 to Present
- **MIMO Channel Capacity Maximization in Vehicular Networks** in presence of LoS via a noble antenna selection algorithm- Supervisor Prof. A. Mohammadi Fall 2011
- **Medical Image Contrast Enhancement (Undergraduate thesis),** Implementation and design of a software for preprocessing and enhancement of microscopic images of chromosomes. *Awarded by electrical engineering department as the best bachelor design project.* - Supervisor Prof B. Khalaj Fall 2010 to Fall 2011
- **Smart Home,** implementing a home automation system with the ability of controlling, monitoring and displaying the temperature, light, ventilation and energy consumption of the house. Zigbee, wireless and GSM enabled for better performance. Fall 2010 to Fall 2012

Teaching Experience

- Digital Image Processing II — Spring 2014
- Computer Structure and Microprocessor — Fall 2010, Fall 2011
- Principles of Electronic — Fall 2009, Fall 2010
- Signals and Systems — Spring 2011
- Analog circuits and laboratory — Spring 2009, Spring 2010
- Principles of Electrical Engineering — Fall 2010
- Logic Circuits — Spring 2010
- Electronics for high school students — Summer 2010

Selected Publications

Journal Papers:

- T. H. Vu, H. S. Mousavi, V. Monga, UK A. Rao, G Rao. Histopathological Image Classification Using Discriminative Feature-oriented Dictionary Learning. *Accepted, IEEE Transaction on Medical Imaging*, Jun 2015.
- H.S. Mousavi, V. Monga, T. D. Tran. ICR: Iterative Convex Refinement for sparse Signal Recovery Using Spike and Slab Priors. *IEEE Signal Processing Letters*, vol.22, no.11, pp.1903 - 1907, Nov. 2015.
- H.S. Mousavi, V. Monga, A. U. Rao, G. Rao. Automated Discrimination of Lower and Higher Grade Gliomas Based on Histopathological Image Analysis. *Journal of Pathology Informatics*, vol. 6, Mar 2015.
- U. Srinivas, H. S. Mousavi, V. Monga, A. Hattel, and B. Jayarao. Simultaneous sparsity model for histopathological image representation and classification. *IEEE Transactions on Medical Imaging*, vol. 33, no. 5, pp. 1163 - 1179, May 2014.

Conference Papers:

- T. H. Vu, H. S. Mousavi, V. Monga, UK A. Rao, G Rao. DFDL: Discriminative Feature-Oriented Dictionary Learning for Histopathological Image Classification. *Proc. IEEE International Symposium on Biomedical Imaging (ISBI)*, pp. 990-994, April, 2015.
- H.S. Mousavi, U. Srinivas, Y. Suo, M. Dao, V. Monga, T. D. Tran. Collaborative Hierarchical Image Classification via Spike and Slab Priors. *Proc. IEEE International Conference on Image Processing (ICIP)*, pp. 4236-4240, Oct, 2014.
- Y. Suo, M. Dao, H.S. Mousavi, U. Srinivas, T. D. Tran, V. Monga. Group Structured Dirty Dictionary Learning For Classification *Proc. IEEE International Conference on Image Processing (ICIP)*, pp.150-154, Oct. 2014. **Top 10 % Paper Award Winner**
- U. Srinivas, H.S. Mousavi, Ch. Jeon, V. Monga, A. Hattel, B. Jayarao. SHIRC: A Simultaneous Sparsity Model for Histopathological Image Representation and Classification. *Proc. IEEE International Symposium on Biomedical Imaging (ISBI)*, pp. 1106 - 1109, April, 2013.
- H.S. Mousavi, B. Khalighinejad, B.H Khalaj. Capacity Maximization in MIMO Vehicular Communication using a Novel Antenna Selection Algorithm. *Proc. IEEE International Wireless Communication & Mobile Computing Conference (IWCMC)*,July, 2013.
- P. Ehsani, H.S. Mousavi, B.H Khalaj. Iterative Histogram Matching Algorithm for Chromosome Image Enhancement Based on Statistical Moments. *Proc. IEEE International Symposium on Biomedical Imaging (ISBI)*, pp. 214 - 217, May, 2012.
- P. Ehsani, H.S. Mousavi, B.H Khalaj. Chromosome Medical Image Contrast Enhancement Using Adaptive, Iterative Histogram Matching. *Proc. IEEE Machine Vision and Image Processing (MVIP)*, pp. 1-5, Nov, 2011.

Memberships and Professional Activities

- Reviewer of IEEE Transaction on Image Processing (TIP)
- Reviewer of IEEE Signal Processing Letters (SPL)
- Reviewer of IEEE Transaction on Circuits and Systems for Video Technology (TCSVT)
- Reviewer of IEEE Transactions on Geoscience and Remote Sensing (TGRS)
- Reviewer of SPIE Journal of Electronic Imaging (JEI)
- Reviewer of Elsevier Journal of Computers and Electrical Engineering
- The Institute of Electrical and Electronics Engineers (IEEE)