



## Sos Aghaian, Ph.D.

### Peter Flawn Professor

Department of Electrical Engineering

#### Areas of Teaching Interest:

- Digital Signal Processing
- Signals and Systems
- Wavelet Transforms
- Computer Vision
- Pattern Recognition
- Medical Imaging
- Multimedia Security
- Digital Filters

#### Areas of Research Interest:

- Signal and image processing
- Algorithms
- Artificial Intelligent and Computer Vision
- Cancer Imaging
- Multimedia Security
- Compressions and Encryption
- Biomedical and Health Informatics
- Sensor Network and Systems
- Thermal Imaging and Energy
- Biometric Systems
- *Image/data Fusion*

#### Journals

- **An Adaptive LMS Technique for Wavelet Polynomial Threshold Denoising**  
S. Aghaian, D. Akopian, J. Morales and S. Sathyanarayana, to be submitted.
- **Color Image Enhancement Based on the Discrete Cosine Transform Coefficient Histogram**  
S. Aghaian, K. A. Panetta and J. Xia, Electron Imaging 21, 021117, May 10, 2012.
- **Hadamard Matrices**  
S. Aghaian, J. Astola, K. Egiazarian, and A. Sarukhanyan, SPIE 655 pages.
- **IEEE Transactions on Information Technology in Biomedicine**  
S. Aghaian, H. Jia, K. Panetta and Y. Zhou, VOL. 00, NO. 00, (2011).
- **Method and Architecture for Quantification of Bone Structure using Microscopic Image Slices**  
S. Aghaian, IS&T/SPIE Electronic Imaging 2013: Proc. SPIE (Submitted), 2013.

- **Multi-Resolution Decomposition Schemes Using the Parameterized Logarithmic Image Processing Model with Application to Image Fusion**  
S. Agaian, S. Nercessian and K.A. Panetta, EURASIP Journal on Advances in Signal Processing, Volume 2011, Article ID 515084, 17 pages, <http://www.hindawi.com/journals/asp/2011/515084/>
- **Multi-Scale Image Enhancement Using a Second Derivative-Like Measure of Contrast**  
S. Agaian, S. Nercessian and K.A. Panetta, Proc. SPIE 8295, 82950Q, (2012).
- **A New Set of Wavelet-and Fractals- Based Features for Gleason Grading of Prostate Cancer Histopathology Images**  
S. Agaian and C. Mosquera-Lopez , IS&T/SPIE Electronic Imaging 2013: Proc. SPIE (Submitted), (2013).
- **A New System of Computer-Aided Diagnosis of Skin Lesions**  
S. Agaian and I. Sanchez, Proc. SPIE 8295, 82951A, 2012.
- **Polynomial Threshold Denoising in the PCA Domain**  
S. Agaian, D. Akopian and J. Morales, to be submitted.
- **Automated Segmentation & Classification System for Acute Myelogenous Leukemia Detection in Blood Microscopic Images**  
S. Agaian, A.T. Chronopoulos, M. Madhukar and X. Wang.
- **New Decision Support Tool for Acute Lymphoblastic Leukemia Classification**  
S. Agaian, A.T. Chronopoulos and M. Madhukar, Proc. SPIE 8295, 829518, (2012), doi:10.1117/12.905969.

## Conference Proceedings

- **3D CT Baggage Image Enhancement Based on Order Statistic Decomposition**  
S. Agaian, K. Panetta and Y. Zhou, April 28, 2010, IEEE International Conference on Technologies for Homeland Security (IEEE HST '10), 8-10 November, New York, New York, Proc. SPIE Vol. 7708, 77080G 12 pages.
- **An Adaptive LMS Technique for Wavelet Polynomial Threshold Denoising**  
S. Agaian, D. Akopian and S. Sathyanarayana, April 2011, accepted to SPIE Mobile Multimedia/Image Processing, Security and Applications 2011, Washington.
- **A Biological Speech Recognition System by Using Associative Neural Networks World Automation Congress**  
S. Agaian, M. Jamshidi and D. Shahgoshtasb, September 19-22, 2010, Kobe, Japan, 5 pages.
- **Color Future Based Computer-Aided Diagnoses System of Skin Cancer**  
S. Agaian and I. Sanchez, 2012, 2012 IEEE International Conference on Systems, Man, and Cybernetics, Seoul, Korea.
- **Computer Aided Diagnosis of Lesions Extracted from Large Skin Surfaces**  
S. Agaian and I. Sanchez, October 14-17 2012, IEEE Conf. SMC 2012, Seoul, Korea (South).
- **Deterministic Model for Acute Myelogenous Leukemia Classification**  
S. Agaian, A.T. Chronopoulos and M. Madhukar, October 14-17, 2012, 2012 IEEE International Conference on Systems, Man and Cybernetics, Seoul, Korea.
- **Exploration of Efficacy of Gland Morphology and Architectural Features in Prostate Cancer Gleason Grading**  
S. Agaian, A. Almuntashri, C. Mosquera Lopez, I. Sanchez and I. Thompson, October 14-17 2012, IEEE Conf. SMC 2012, Seoul, Korea (South).
- **Human Visual System Based Mammogram Enhancement and Analysis**

- S. Agaian, K. Panetta and Y. Zhou, 2010, 2010 IEEE International Conference on Image Processing Theory Tools and Applications (IPTA), Paris, France, pp. 229-234.
- **Image Fusion Using The Parameterized Logarithmic Dual Tree Complex Wavelet Transform**  
S. Agaian, S. Nercessian and K. Panetta, November 8-10, 2010, IEEE International Conference on Technologies for Homeland Security (IEEE HST '10). (pp. 296-302) New York, New York: IEEE.  
doi:10.1109/THS.2010.5655039
  - **An Interpolation Filter Based on Wavelet Polynomial Threshold Operators**  
S. Agaian, D. Akopian and M. Chan, April 2011, SPIE Mobile Multimedia/Image Processing, Security and Applications 2011, Washington.
  - **Logical Transform Based Encryption for Multimedia Systems**  
S. Agaian, Rudraraju, Raja.G.R.; Cherukuri, Ravindranath.C.; , October 10-13, 2010, Man and Cybernetics, SMC 2010. IEEE International Conference, Page(s): 1953 - 1957.
  - **Mathematical Modeling of Trabecular Bone Architecture Using Stochastic**  
S. Agaian , D. Mecke, A. Montelongo and X. Wang, Oct. 24-27, 2012, 2012 BMES Annual Meeting (Submitted), Atlanta, Georgia.
  - **Multi-Scale Image Fusion Using the Parameterized Logarithmic Image Processing Model**  
S. Agaian, S. Nercessian and K. Panetta, 2010, Systems, Man and Cybernetics, SMC 2010. IEEE International Conference, Page(s): 3930 - 3937.
  - **Nonlinear filtering for enhancing prostate MR images via alpha-trimmed Mean Separation**  
S. Agaian, K. Panetta and Y. Zhou, 2010, Systems, Man and Cybernetics, SMC 2010. IEEE International Conference, New York, NY, Page(s): 3698 - 3701.
  - **Parameterization of Logarithmic Image Processing Models**  
S. Agaian, K. Panetta, E.J. Wharton and Y. Zhou, 2010, IEEE Transactions on Systems, Man and Cybernetics - Part: 2010, Issue: 99, Page(s): 460 - 473.
  - **A Polynomial Threshold Wavelet Denoising Approach for 3-D Biomedical Applications**  
S. Agaian, D. Akopian, M. Chan and S. Sathyanarayana, April 2011, SPIE Mobile Multimedia/Image Processing, Security and Applications 2011, Washington.
  - **Purkinje Cell 3D Reconstruction and Visualization System**  
S. Agaian, McClendon and A. Stephen, 2010, Man and Cybernetics, SMC 2010. IEEE International Conference, New York, NY, Page(s): 1689 - 1696.
  - **Selective Region Encryption Using a Fast Shape Adaptive Transform**  
S. Agaian, Metzler and E.L. Richard, 2010, Systems, Man and Cybernetics, SMC 2010. IEEE International Conference, Page(s): 1763 - 1770.
  - **Web Based Integrated Framework for Security Applications**  
S. Agaian, K. Panetta and S. Veeraraghavan, 2010, Systems Man and Cybernetics (SMC), 2010 IEEE International Conference Page(s): 1889 - 1895.