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### Research Interests and Expertise

**Digital Signal Processing:** Multirate systems, Filter banks, Wavelets, Image processing, Estimation theory, Detection theory, Sensor fusion, Distributed Signal Processing

**Machine Learning:** Supervised Learning, Un-supervised Learning, Information Theory, Neural Networks, Support Vector Machines, Deep Learning

**Optics:** Lens Design, Telescopes, Imaging Systems, Optical Gun Sights, Fiber Optic Imaging Systems, Aberration Theory, Binoculars, Binocular Vision

**Biometrics:** Finger print recognition algorithms, Iris Recognition Algorithms, Test and Evaluation Methodology, Sensors and Imaging Devices

**Applied Mathematics and Statistic:** Inverse Problems, Ill-posed problems, Principal Component Analysis, Time Series Analysis, Kolmogorov complexity, Algorithmic Information Theory, Fourier Analysis

**Patents and Intellectual Property:** Preparation of an application, Drafting claims, Response to Office Actions, Prior art research, Licensing, Infringement and Valuation

### Education

<b>Post-doctoral Fellowship</b> Artificial Perception Laboratory University of Toronto, Toronto, Ontario, Canada	2002-2004
<b>Ph.D.</b> , Electrical and Computer Engineering, University of Toronto, Toronto, Canada Thesis: Theory of Multirate Statistical Signal Processing Advisors: Prof. Bruce A Francis (FIEEE) and Prof. Raymond H. Kwong	2002
<b>M.Sc.</b> , Electrical Engineering, Shiraz University, Shiraz, Iran (Highest Distinction) Thesis: An Adaptive Approach to Digital Filter Bank Design Advisor: Prof. M. A. Masnadi Shirazi	1997
<b>B.Sc.</b> , Electrical Engineering, Shiraz University, Shiraz, Iran (Highest Honors)	1994

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**Employment Positions**

<b>Senior Machine Learning Engineer</b> Belkin International Inc., Playa Vista, California	02/2011 – present
<b>Principal Engineer</b> Sonavation Inc., Palm Beach Gardens, Florida	09/2006 – 01/2011
<b>Senior Algorithm Developer</b> Bioscrypt Inc., Toronto, Ontario, Canada	08/2004 - 08/2006
<b>Instructor</b> Departments of Electrical & Computer Engineering and Mechanical and Industrial Engineering University of Toronto, Toronto, Ontario, Canada	01/2001 - 04/2004

**Invited or Elected Positions**

<b>Referee, European Research Council (ERC)</b> Reviewed scientific proposals submitted to the ERC	2016
<b>Vice President, Paraiso Home Owners' Association</b> Playa Vista, California	2014-present
<b>Member, Doctoral Thesis Committee</b> Candidate: S. Sridevi Andhra University, Andhra Pradesh, India	2012 - 2013
<b>Member, Doctoral Thesis Committee</b> Candidate: Ravindra Dhuli Indian institute of Technology, New Delhi, India	2009 - 2011
<b>Member, SC37 Committee on Biometric Standards</b> International Organization for Standards (ISO) Geneva, Switzerland	2006 – 2011
<b>Member, M1 and M1.3 Committees on Biometric Standards</b> International Committee for Information Technology Standards (INCITS) Washington, DC, USA	2005 – 2011
<b>Chair, Technical Session on Digital Signal Processing</b> IEEE International Symposium on Information Theory (ISIT) Washington, DC, USA	June 2001

**Awards and Distinctions****Ranked No. 10 out of more than 100,000 applicants**

Iranian University Entrance Exam (1990)

**Senior Member, Institute of Electrical and Electronics Engineers (IEEE)**

In recognition of "experience reflecting professional maturity and significant professional achievement" (2008)

**Excellence-In-Teaching Citations**

Received twice from Chair of the Department of Electrical and Computer Engineering, University of Toronto, Toronto, Ontario, Canada (2003 and 2004)

**Frank Howard Guest Graduate Bursary**

Received at University of Toronto, Toronto, Ontario, Canada (2001)

**University of Toronto Doctoral Fellowship**

Received three times in 1998, 1999 and 2000

**Patented Inventions (personal)**

Prismatic eyepiece attachment for telescopic gun sights, US Application No. 15/181,918

Telescopic gunsight with tilted viewing axis, US Application No. 15/150,510

Binocular telescope with controlled parallax, US Application No. 14/645,382

Telescopic gun sight with tilting optical adjustment, US Application No. 14/334,613

Combination gun sight with single eyepoint, US Patent No. 9,435,611

Telescopic gun sight with offset eyepoint, US Patent No. 9,417,037

Telescopic gun sight with ballistic zoom, US Patent No. 9,383,166

Telescopic gun sight with rotating optical adjustment mechanism, US Patent No. 9,164,269

Telescopic gun sight with linear optical adjustment mechanism, US Patent No. 8,749,887

Telescopic gun sight free of parallax error, US Patent No. 8,749,884

**Patented Inventions (corporate)**

Method and system for enhanced image alignment, US Patent No. 8,634,604

Navigation using Fourier phase technique, US Patent No. 8,358,803

**Book Authored**

Multirate Statistical Signal Processing, Springer-Verlag, Berlin, 190 pages, published in 2007

**Book Chapter Authored**

"Distributed Signal Processing in Sensor Networks," with P. Aarabi, 25 pages, published in Embedded Systems Handbook, Vol. 2: Networked Embedded Systems, R. Zurawski Ed., CRC Press, Boca Raton, Florida, 2009

**US National Standards Edited**

Jahromi, O. S. Ed., **ANSI/INCITS 377-2009**, American National Standard for Information Technology- Finger Pattern Data Interchange Format

Jahromi, O. S. Ed., **ANSI/INCITS 423.3-2009**, American National Standard for Information Technology - Conformance Testing Methodology Standard, Part 3: Finger Pattern Conformance Testing Methodology

**Peer-reviewed Journal Papers**

Jahromi, O. S. and P. Aarabi, "Theory and Design of Multirate Sensor Arrays," IEEE Transactions on Signal Processing, Vol. 53, No. 5, pp. 1739-1753, May 2005

Jahromi, O. S., B.A. Francis and R. H. Kwong, "Spectrum Estimation Using Multirate Observations," IEEE Transactions on Signal Processing, Vol. 52, No. 7, pp. 1878-1890, July 2004

Jahromi, O. S., B. A. Francis and R. H. Kwong "Relative Information of Multirate Sensors," Information Fusion, Vol. 5, No. 2, pp. 119-129, June 2004

Jahromi, O. S., B. A. Francis and R. H. Kwong, "Algebraic Theory of Optimal Filter Banks," IEEE Transactions on Signal Processing, Vol. 51, No. 2, pp. 442-457, February 2003

**Peer-reviewed Conference Papers**

Jahromi, O. S. and P. Aarabi, "Distributed Spectrum Estimation in Sensor Networks," International Conference on Acoustics, Speech and Signal Processing (ICASSP 2004), Montreal, Quebec, May 2004

Aarabi, P., G. Shi and O. S. Jahromi, "Robust Speech Separation Using Time-Frequency Masking," IEEE Conference on Multimedia and Expo (ICME 2003), Baltimore, MD, July 2003

Jahromi, O. S. and P. Aarabi, "Time Delay Estimation and Signal Reconstruction using Multirate Measurements," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2003), Hong Kong, April 2003

Jahromi, O. S., B. A. Francis and R. H. Kwong, "Multirate Spectral Estimation," Pacific Rim Conference on Communications, Computers and Signal Processing (PACRIM 2001), Victoria, BC, August 2001

Jahromi, O. S., B. A. Francis and R. H. Kwong, "Multirate Signal Estimation," Canadian Conference on Electrical and Computer Engineering (CCECE 2001), Toronto, ON, May 2001

Jahromi, O. S., R. H. Kwong and B. A. Francis, "Information Theory of Multirate Systems," International Symposium on Information Theory (ISIT 2001), Washington, DC, June 2001

Jahromi, O. S., B. A. Francis and R. H. Kwong, "Algebraic Theory of Optimal Filter Banks," International Conference on Acoustics, Speech and Signal Processing (ICASSP 2000), Istanbul, Turkey, June 2000

Jahromi, O. S. and B. A. Francis, "An Information Theoretic Method for Designing Multiresolution Principal Component Transforms," International Joint Conference on Neural Networks (IJCNN 1999), Washington, DC, July 1999

Jahromi, O. S., M.A. Masnadi-Shirazi and M. Fu, "A Fast  $O(N)$  Algorithm for Signal-Adaptive Filter Bank Design," International Conference on Acoustics, Speech and Signal Processing (ICASSP 1998), Seattle, WA, May 1998

### **Articles Published in Hunting and Outdoor Magazines**

Jahromi, O. S., "Pheasant and Partridge Hunting in California", Hunting and Nature Magazine, Issue 136, Tehran, 2014 (in Persian)

Jahromi, O. S., "A Visit to the International Hunting and Outdoors Convention in Las Vegas, Nevada", Hunting and Nature Magazine, Issue 135, Tehran, 2014 (in Persian)

Jahromi, O. S., "An introduction to J. P. Sauer Hunting Rifles", Hunting and Nature Magazine, Issue 133, Tehran, 2013 (in Persian)

Jahromi, O. S., "A visit to the Safari Club International Convention in Reno, Nevada", Hunting and Nature Magazine, Issue 132, Tehran, 2013 (in Persian)

### **Membership in Learned Societies**

Institute of Electrical and Electronics Engineers (IEEE), Member (1997-2008), Senior Member (2008- present)

Optical Society of America (OSA), Member (2011 – present)

### **Membership in Hunting and Wildlife Conservation Societies**

Safari Club International (SCI), Los Angeles & Orange County Chapters (2013 – present)