Curriculum Vitae (C.V.)

(Updated 10 April 2010)

Massoud BABAIE-ZADEH

Associate professor of Sharif University of Technology; Senior Member of IEEE

Birthdate: 31 July 1972
Birthplace: Yazd/IRAN
Nationality: Iranian
Marital Status: Married, no child

Contact Addresses

Address: Department of Electrical Engineering, Sharif University of Technology, Tehran, IRAN

Phone: +98 21 66 16 59 25 (work)

Emails: mbzadeh@yahoo.com (preferred address)
mbzadeh@sharif.edu
mbzadeh@ieee.org

Education

1/1997–9/2002 **Ph.D. on Signal Processing (SIPT=Signal, Image, Parole, Télécom)**, *Institut National Polytechnique de Grenoble (INPG)*, Grenoble, France and *Sharif University of Technology*, Tehran, IRAN.
Comment 1: My PhD thesis got accepted with the grade "Très honorable avec félicitations du Jury" (highest grade in France), and won INPG "Best PhD thesis" award in 2005.
Comment 2: My PhD thesis was a collaborative work between the universities Sharif in Iran and INPG in France. From January 1997 to October 1999, I was busy with PhD courses in Iran (which is obligatory in Iran's PhD program) and the qualification exam and defending my proposal for the PhD thesis in Iran. From November 1999 to September 2002, I was working on my PhD thesis (mainly in France).

9/1994–12/1996 **M.Sc. on Digital Electronics**, *Sharif University of Technology*, Tehran, IRAN, GPA: **18.6/20** (Rank 1).

9/1990–9/1994 **B.Sc. on Electrical Engineering (Electronics)**, *Isfahan University of Technology*, Isfahan, IRAN, GPA: **19.05/20** (Rank 1).

Master thesis

Title: *Separating two overlapping speech signals*

Supervisor: Pr. Mahmoud TEBYANI, *Sharif University of Technology*

Description This master thesis was about separating two mixed signals from only one microphone. At that time, Blind Source Separation (BSS) was a relatively new tool, and we were not aware of it. Then I tried to use ideas based on properties of speech signals. In particular, I tried to apply the sinusoidal model of speech signals (which had been developed by Quatiery and McAulay in 1986) for solving this problem. However, while doing this thesis, I learned about BSS as a new tool (at that time) for signal separation based on multi-sensor measurements, which determined my direction for the PhD level.

Ph.D. thesis

Title *On Blind Source Separation in Convolutive and Non-Linear mixtures*

Supervisors Pr. Christian JUTTEN, *Institut National Polytechnique de Grenoble (INPG)*, and Dr. Kambiz NAYEBI *Sharif University of Technology*

Description In my Ph.D thesis I was looking for a method for blind separating convolutive Post Non-Linear (PNL) mixtures. The main problem was that the methods already developed for separating PNL mixtures (as a special case of nonlinear mixtures which is theoretically separable) and the methods already developed for separating convolutive mixtures were based on too different ideas, and they could not be combined to separate convolutive PNL mixtures. Then I focused on Mutual Information as an exact measure of independence, and developed a general method for mutual information minimization, which can be used in almost any mutual information minimization problem. My method was based on a function that I called Score Function Difference (SFD), and I showed that it acts virtually as a 'gradient' for mutual information. Based on this approach, I developed a set of methods for separating linear, convolutive, PNL, and convolutive PNL mixtures.

Moreover, at that time, many experts in the field beleived that general nonlinear mixtures might be separable if we assume that the mixing system was 'smooth'. However, in my PhD thesis, I constructed a counter-example to show that even a smooth nonlinear mixing system may be non-separable.

As mentioned earlier, my PhD was a collaboration ('co-tutelle' PhD) between Sharif University of Technology (Iran) and INP de Grenoble (France). I spent about two years in Iran taking the courses, and then three years working on my thesis, mainly in France, and under supervision of Pr. Christian JUTTEN (the inventor of BSS/ICA). More precisely, I passed 2 years in France and one year in Iran:

-November 1999 to September 2000 in France,
-September 2000 to October 2001 in Iran,
-October 2001 to October 2002 in France.

I defended my PhD thesis on 20 September 2002 in France, in front of the following jury:

1. Pr. Dinh-Tuan PHAM, INPG, *president of the jury*,
2. Pr. Christian JUTTEN, INPG, *thesis' supervisor*,
3. Dr. Kambiz NAYEBI, Sharif University of Technology, *thesis' supervisor*,
4. Pr. Pierre COMON, University of Nice, *reviewer ('rapporteur')*,
5. Pr. Jean-Françoise CARDOSO, ENST Paris, *reviewer ('rapporteur')*,
6. Pr. Masoomeh NASIRI, Sharif University of Technology, *examiner*.

Career

Before becoming a faculty member of Sharif University, during my MS and PhD studies in Iran, I was working part-time for Iranian companies. When I was in France for my PhD thesis (11/1999–9/2000 and 10/2001–10/2002), I had a scholarship from the French government. The detailed list is given below.

1995 Part-time digital circuit designer, Pardazesh-Iran company, Tehran, Iran. It was a small design company (with about 10 employees), active on design and implementation of Voice Mail systems.

1996–1998 Part-time digital circuit designer, Fara-Pardaz company, Tehran, Iran. It was a small design company (with about 10 employees), active on design and implementation of Voice Mail systems.

10/1998–10/1999 Part-time member of R&D group of Informatics Services Corporation (ISC), Tehran, Iran. It is a big company (with more than 3000 employees) active on VSAT satellite networking, used to interconnect the banks of Iran.

11/1999–9/2000 Full-time researcher/PhD student in LIS (Laboratory of Images and Signals), INPG, Grenoble, France.

10/2000–10/2001 Again, part-time member of R&D group of Informatics Services Corporation (ISC), Tehran, Iran.

10/2001–10/2002 Full-time researcher/PhD student in LIS (Laboratory of Images and Signals), INPG, Grenoble, France.

2/2002–4/2003 Three months work in "Tecteon" company. It was a small company (with about 20 employees) active on design and implementation of "Echo Canceler" to be used in digital telephone switches.

4/2003–10/2003 My national services in Iran. At that time, the duration of national service in Iran was 21 months, however, after 7 months of service, thanks to a new law, I got an exemption because of my 3rd rank in MSc national concours in Iran.

10/2003–present Faculty member of Sharif University of Technology, Tehran, IRAN

Experiences

Academic experiences after my Ph.D.

10/2003–present **Faculty member of Electrical Engineering department**, *Sharif University of Technology*, Tehran, IRAN.
From 10/2003 to 10/2008: Assistant Professor,
From 10/2008 to present: Associate Professor.

Courses given:

- "Signal&Systems" (4 × 45 hours), *undergraduate*
- "Digital Signal Processing" (8 × 45 hours), *undergraduate/graduate*
- "Adaptive Filters theory" (6 × 45 hours), *graduate*
- "Numerical Optimization" (3 × 45 hours), *graduate*
- "Multimedia Signal Processing" (2 × 45 hours), *undergraduate/graduate*
- "BSS, Sparse Signal Processing" (2 × 45 hours), *graduate*
- "Probability and Statistics" (once, 45 hours), *undergraduate*
- "Digital Design" (once, 45 hours), *undergraduate*
- I have also established in 2007 (with the help of 4 B.Sc. students) an undergraduate level laboratory to teach working with Digital Signal Processors (TMS320C6416).

Theses supervised/being supervised:

- 1 finished Ph.D thesis
- 14 finished M.Sc theses
- 3 running M.Sc. theses
- 1 running Ph.D. theses

Director of the DSP laboratory of Sharif University, which is a small laboratory composed of about 15 students (B.Sc., M.Sc., and Ph.D levels).

Reviewer of several journals and conferences, including IEEE Transactions on Signal Processing, IEEE Signal Processing letters, Signal Processing (Elsevier), IEEE Transactions on Neural Networks, and conferences ISCAS, ICA, ESANN, EUSIPCO, MLSP, ICEE (Iranian Conference on Electrical Engineering). I have also been a technical program member of the conferences ICA2009, MLSP2009, ICEE (2006, 2008, 2009).

Organizing two special sessions in EUSIPCO2005 (Turkey) and ESANN2006 (Belgium) conferences.

June to August 2006 (3 months) **Invited assistant professor (Maître de Conférence Invité)**, *INP de Grenoble*, Grenoble, France.

July 2008 (one month) **Invited assistant professor (Maître de Conférence Invité)**, *Université d'EVRY Val d'Esonne*, Evry, France.

June to August 2009 (3 months) **Invited assistant professor (Maître de Conférence Invité)**, *INP de Grenoble*, Grenoble, France.

Academic experiences during my M.S and Ph.D. studies

1994–2002 **Student academic works**, Teacher Assistant (TA) of courses: "Signals&Systems" (34 hours, 1994), "Electromagnetics" (17 hours, 1995), "DSP" (17 hours, 1996), "Image Processing" (17 hours, 2000); and Teaching "Digital Design" (51 hours, 1997).

1998 **Organizing a tutorial**, titled "Electromagnetic Interference (EMI) control in digital circuits" at the 1st Student Conference on Electrical Engineering, Tehran, Iran.

Miscellaneous

1994 **B.Sc final project**, *"Design and implementation of the hardware part of a RADAR targets digital simulator"*, Done for Electrical Engineering Research Center, Isfahan University of Technology.
It was an ISA board for Personal Computers (PC).

1995–2001 **Design and Implemention of several electronic boards and/or softwares**, in my part-time works in different companies during my MSc and PhD studies.
For example:
- (1995) Design and implementation of a PC data acquisition ISA board.
- (1995–1998) Different versions of voice mail boards (ISA boards for PC's).
- (1999) A 'solid-state hard-disk', all hardware and software parts: It was an ISA board for PC to emulate a 16MB floppy drive. By using it, there was no need to floppy or hard disks for booting the computer and storing the programs. Its application was in PC-based systems, for removing the mechanical hard-disk or floppy drives, which have short life-times compared to solid-state devices.
- (1999) Design and implementation (using Altrea FLEX 8000 series FPGAs) of a Fano decoder for decoding a length 35 convolutional code (using Fano decoding algorithm), to be applied in a VSAT receiver (1999). This was a team work with 3 other persons.
- (2001) Design of the MAC sublayer of the hub of a satellite computer network. At that time IEEE standard 802.16 had not been yet released. The designed MAC is more or less similar to the MAC of the base station of 802.16.
- (2002) Design of a set of Persian fonts for "FarsiTeX" (http://www.farsitex.org), the Persian version of LaTeX.

Honors and Awards

2005 "The best PhD thesis award of 2002" for my PhD thesis from Institute National Polytechnique of Grenoble (INPG), France.

2008 Selected (by the votes of the students of the Electrical Engineering Department of Sharif University of Technology) as the best course lecturer of the department.

2002 The grade "Très honorable avec félicitations du Jury" (highest grade in France) for my PhD thesis.

1999 French government grant for preparing a Ph.D.

1994 Rank 3 (among more than 5000 persons) at the national exam ('concours') for entering M.Sc. studies in Iran. I obtained an exemption of my national service (which is obligatory in Iran) thanks to this rank.

1990 Rank 15 among more than 200,000 persons in the national exam ('concours') for university entrance in Iran.

1994 Rank 1 among all of the electrical engineering graduated students (about 120 persons) at Isfahan University of technology, Isfahan, Iran.

1996 Rank 1 among all 5 M.S. students of digital electronics at Sharif university of technology, Tehran, Iran.

1997 Rank 1 (among about 100 persons) in the Ph.D. entrance examination of Sharif university of technology.

Organized Special Sessions and Session Chairs

2005 European Signal Processing Conference (EUSIPCO), September 2005, Antalya, Turkey. Special Session on "Novel directions in information theoretic approaches to source separation and estimation".

2006 European Symposium on Artificial Neural Networks (ESANN), April 2006, Bruges, Belgium, Special Session on "Semi-Blind approaches to source separation"

2006 and 2008 Iranian Conference on Electrical Engineering (ICEE).

Supervised Theses

Finished Ph.D theses

2010 1. Mr. Hadi Zayyani, "SCA and its applications."

Finished M.Sc theses

2003 1. Ms. Samareh Samadi, "Adaptive techniques for estimating Score Function Difference (SFD) and its application to Blind Source Separation."

2004 2. Mr. Mahmoud Ferdosi-Zadeh, "Blind Separation of Speech Signals."

2004 3. Mr. Hamed Moti-ian, "Blind separation of speech signals in the frequency domain."

2005 4. Mr. Mazda Hamdi, "Using Blind Source Separation techniques for beamforming."

2006 5. Mr. Arash Ali Amini, "Underdetermined Sparse Component Analysis (SCA)."

2007 6. Mr. Rahil Mahdyian, "Using SCA for underdetermined speech separation in frequency domain."

2008 7. Ms. Soodeh Ahani, "Optical Character Recognition (OCR) based on Sparse Decomposition."

2008 8. Mr. Farnoud Merrikh-Bayat, "Removing bleed-through effect of scanned documents using nonlinear BSS techniques."

2008 9. Mr. Seyyed-Ali HesamMohseni, "Coded Compressed Sensing"

2008 10. Mr. Aboozar Ghaffari, "Image denoising based on sparse decomposition"

2009 11. Ms. Zahra Sadeghipour, "Image denoising based on sparse decomposition."

2009 12. Mr. Hamid Palangi, "Image compression based on sparse decomposition and Mixed-Transform techniques."

2009 13. Ms. Fatemeh Mokhtari, "Removing show-through effect of scanned documents using nonlinear BSS techniques."

2010 14. Ms. Mahsa Akhbari, "Activation detection in fMRI images based source separation." This MS thesis was co-supervised by me and Dr. Emad Fatemizadeh.

Current Ph.D. theses

2009 1. Mr. Seyyed-Majid Valiollah-Zadeh, "Aplications of Sparse Decompositions in Image Processing".

Current M.Sc theses

2010 1. Mr. Rad Nia-Zadeh, "Sparse Channel Estimation".

2010 2. Mr. Sina Hamidi, "Applications of Sparse Decomposition in Optical Character Recognition (OCR)."

2010 2. Mr. Kian Hajisami, "Applications of ICA in image watermarking."

B.Sc. projects

2003–present I have supervised a lot of B.Sc. projects, many of which have been resulted in scientific papers (see for examples my papers with Mr. Hossein Mohimani, Mr. Farid Movahhedi, Mr. Bahman Bahmani, and Mr Nima Noorshams).

Languages

Persian native language

English reading, writing, speaking

French reading, writing, speaking

Publications

Journal

[1] M. Babaie-Zadeh, C. Jutten, and K. Nayebi, "Using multivariate score functions in source separation: Application to post non-linear mixtures," *Scientia-Iranica*, vol. 9, no. 4, pp. 409–418, 2002.

[2] C. Jutten, M. Babaie-Zadeh, and S. Hosseini, "Three easy ways for separating nonlinear mixtures?" *Signal Processing (Elsevier)*, vol. 84, no. 2, pp. 217–229, 2004.

[3] M. Babaie-Zadeh, C. Jutten, and K. Nayebi, "Differential of mutual information," *IEEE Signal Processing Letters*, vol. 11, no. 1, pp. 48–51, January 2004.

[4] M. Babaie-Zadeh and C. Jutten, "A general approach for mutual information minimization and its application to blind source separation," *Signal Processing (Elsevier)*, vol. 85, no. 5, pp. 975–995, May 2005.

[5] M. Babaie-Zadeh, C. Jutten, and A. Mansour, "Sparse ICA via cluster-wise PCA," *Neurocomputing (Elsevier)*, vol. 69, pp. 1458–1466, August 2006.

[6] S. Samadi, M. Babaie-Zadeh, and C. Jutten, "Quasi-optimal EASI algorithm based on Score Function Difference (SFD)," *Neurocomputing (Elsevier)*, vol. 69, pp. 1415–1424, August 2006.

[7] F. MovahediNaeini, H. Mohimani, M. Babaie-Zadeh, and C. Jutten, "Estimating the mixing matrix in sparse component analysis (SCA) k-dimensional subspace clustering," *Neurocomputing (Elsevier)*, vol. 71, pp. 2330–2343, June 2008.

[8] H. Zayyani, M. Babaie-Zadeh, and C. Jutten, "On the Cramer-Rao bound for estimating the mixing matrix in noisy sparse component analysis," *IEEE Signal Processing Letters*, vol. 15, pp. 609–612, 2008.

[9] H. Mohimani, M. Babaie-Zadeh, and C. Jutten, "A fast approach for overcomplete sparse decomposition based on smoothed L0 norm," *IEEE Transactions on Signal Processing*, vol. 57, no. 1, pp. 289–301, January 2009.

[10] H. Zayyani, M. Babaie-Zadeh, and C. Jutten, "An iterative bayesian algorithm for sparse component analysis in presence of noise," *IEEE Transactions on Signal Processing*, vol. 57, no. 11, pp. 4378–4390, November 2009.

Book Chapter

[1] C. Jutten, M. Babaie-Zadeh, and J. Karhunen, "Chapter 14: Nonlinear mixtures," in *Handbook of Blind Source Separation*, P. Comon and C. Jutten, Eds. Academic Press, February 2010, ISBN-13: 978-0-12-374726-6.

International Conferences

[1] M. Babaie-Zadeh, C. Jutten, and K. Nayebi, "Separating convolutive mixtures by mutual information minimization," in *Proceedings of IWANN'2001*, Granada, Spain, June 2001, pp. 834–842.

[2] ——, "Compensating frequency response of the sensors in blind separation of the sources," in *International Symposium on Telecommunications (IST2001)*, Tehran, Iran, September 2001, pp. 497–498.

[3] ——, "Blind separating Convolutive Post-Nonlinear mixtures," in *ICA2001*, San Diego, California, December 2001, pp. 138–143.

[4] ——, "A geometric approach for separating Post Non-Linear mixtures," in *EUSIPCO*, vol. II, Toulouse, France, September 2002, pp. 11–14.

[5] ——, "Minimization-projection (MP) approach for blind source separation in different mixing models," in *ICA2003*, Nara, Japan, April 2003, pp. 1083–1088.

[6] M. Babaie-Zadeh, J. Solé-Casals, and C. Jutten, "Blind inversion of wiener system using a minimization-projection (MP) approach," in *ICA2003*, Nara, Japan, April 2003, pp. 681–688.

[7] J. Solé-casals, M. Babaie-Zadeh, C. Jutten, and D.-T. Pham, "Improving algorithm speed in post nonlinear mixtures and wiener systems inversion," in *ICA2003*, Nara, Japan, April 2003, pp. 639–644.

[8] M. Babaie-Zadeh, J. Solé-Casals, and C. Jutten, "A gradient based algorithm for blind inversion of wiener system using multi-dimensional score functions," in *International Symposium on Telecommunications (IST2003)*, Isfahan, Iran, August 2003, pp. 433–437.

[9] M. Babaie-Zadeh, C. Jutten, and K. Nayebi, "A minimization-projection (MP) approach for blind separating convolutive mixtures," in *Proceedings of ICASSP'04*, vol. 5, Montreal, Canada, May 2004, pp. 533–536.

[10] M. Babaie-Zadeh, A. Mansour, C. Jutten, and F. Marvasti, "A geometric approach for separating several speech signals," in *Proceedings of 5th International Conference on Independent*

Component Analysis and Signal Separation (ICA2004), Springer LNCS, Granada, Spain, 22-24 September 2004, pp. 798–806.

[11] S. Samadi, M. Babaie-Zadeh, C. Jutten, and K. Nayebi, "Blind source separation by adaptive estimation of score function difference," in *Proceedings of 5th International Conference on Independent Component Analysis and Signal Separation (ICA2004), Springer LNCS*, Granada, Spain, 22-24 September 2004, pp. 9–17.

[12] M. Babaie-Zadeh, B. Bahmani, and C. Jutten, "ICA by mutual information minimization: An approach for avoiding local minima," in *European Signal Processing Conference (EUSIPCO)*, Antalya, Turkey, September 2005.

[13] B. Bahmani, M. Babaie-Zadeh, and C. Jutten, "A new method for estimating Score Function Difference (SFD) and its application to blind source separation," in *European Signal Processing Conference (EUSIPCO)*, Antalya, Turkey, September 2005.

[14] M. Ferdosi-Zadeh, M. Babaie-Zadeh, and F. Marvasti, "A new method for separation of speech signals from convolutive mixture," in *European Signal Processing Conference (EUSIPCO)*, Antalya, Turkey, September 2005.

[15] B. Bahmani, M. Babaie-Zadeh, and C. Jutten, "Performance comparison of different Score Function Difference (SFD) estimation methods," in *proceedings of International Symposium on Telecommunications (IST2005)*, Shiraz, Iran, September 2005, pp. 399–404.

[16] D. Shamsi and M. Babaie-Zadeh, "Adaptive time domain signal estimation for multi-microphone speech enhancement," in *proceedings of International Symposium on Telecommunications (IST2005)*, Shiraz, Iran, September 2005, pp. 49–53.

[17] R. Sameni, M.-B. Shamsollahi, M. Babaie-Zadeh, and C. Jutten, "Filtering noisy ECG signals using the extended Kalman filter based on a modified dynamic ECG model," in *proceedings of Computers in Cardiology*, Lyon, France, 2005, pp. 1017–1020.

[18] A. A. Amini, M. Babaie-Zadeh, and C. Jutten, "A new approach for sparse decomposition and sparse source separation," in *European Signal Processing Conference (EUSIPCO)*, Florence, Italy, September 2006.

[19] ——, "A fast method for sparse component analysis based on Iterative Detection-Estimation," in *American Institute of Physics (AIP) Conference Proceeding (MaxEnt2006)*, vol. 872, 2006, pp. 123–130.

[20] A. Eslami and M. Babaie-Zadeh, "Adaptive block motion prediction," in *proceedings of IEEE international symposium on Signal Processing and Information Technology (ISSPIT)*, Canada, 2006, pp. 908–913.

[21] F. MovahhediNaeini, H. Mohimani, M. Babaie-Zadeh, and C. Jutten, "Estimating the mixing matrix in Sparse Component Analysis (SCA) based on multidimensional subspace clustering," in *proceedings of IEEE 15th International Conference on Telecom (ICT2007)*, Malaysia, May 2007.

[22] H. Zayyani, M. Babaie-Zadeh, and C. Jutten, "Source estimation in noisy sparse component analysis," in *proceedings of IEEE 15th International Conference on Digital Signal Processing (DSP2007)*, Cardiff, UK, June 2007, pp. 219–222.

[23] N. Noorshams, M. Babaie-Zadeh, and C. Jutten, "Estimating the mixing matrix in sparse component analysis based on converting a multiple dominant to a single dominant problem," in *Proceedings of 7th International Conference on Independent Component Analysis and Signal Separation (ICA2007), Springer LNCS 4666*, London, UK, September 2007, pp. 397–405.

[24] H. Zayyani, M. Babaie-Zadeh, H. Mohimani, and C. Jutten, "Sparse component analysis in presence of noise using an iterative em-map algorithm," in *Proceedings of 7th International Conference on Independent Component Analysis and Signal Separation (ICA2007), Springer LNCS 4666*, London, UK, September 2007, pp. 438–445.

[25] H. Mohimani, M. Babaie-Zadeh, and C. Jutten, "Fast sparse representation based on smoothed l0 norm," in *Proceedings of 7th International Conference on Independent Component Analysis and Signal Separation (ICA2007), Springer LNCS 4666*, London, UK, September 2007, pp. 389–396.

[26] E. Azizi, H. Mohimani, and M. Babaie-Zadeh, "Adaptive sparse source separation with application to speech signals," in *proceedings of IEEE International Conference on Signal Processing and Communications (ICSPC)*, Dubai, United Arab Emirates (UAE), November 2007, pp. 640–643.

[27] S. Zahedpour, M. Ferdosizadeh, F. Marvasti, H. Mohimani, and M. Babaie-Zadeh, "A novel impulsive noise cancellation based on successive approximations," in *proceedings of Sampling Theory and Applications (SampTa2007)*, Thessaloniki, Greece, 1-5 June 2007, pp. 126–131.

[28] H. Firouzi, M. Babaie-Zadeh, A. G. Sahebi, and C. Jutten, "A first step to convolutive sparse representation," in *Proceedings of* ICASSP2008, Las Vegas, April 2008, pp. 1921–1924.

[29] H. Zayyani, M. Babaie-Zadeh, and C. Jutten, "Decoding real-field codes by an iterative Expectation-Maximization (EM) algorithm," in *Proceedings of* ICASSP2008, Las Vegas, April 2008, pp. 3169–3172.

[30] H. Mohimani, M. Babaie-Zadeh, and C. Jutten, "Complex-valued sparse representation based on smoothed L0 norm," in *Proceedings of* ICASSP2008, Las Vegas, April 2008, pp. 3881–3884.

[31] F. Merrikh-Bayat, M. Babaie-Zadeh, and C. Jutten, "A nonlinear blind source separation solution for removing the show-through effect in the scanned documents," in *European Signal Processing Conference (EUSIPCO)*, Lausanne, Switzerland, August 2008.

[32] A. Javanmard, P. Pad, M. Babaie-Zadeh, and C. Jutten, "Estimating the mixing matrix in underdetermined Sparse Component Analysis (SCA) using consecutive Independent Component Analysis (ICA)," in *European Signal Processing Conference (EUSIPCO)*, Lausanne, Switzerland, August 2008.

[33] H. Zayyani, M. Babaie-Zadeh, and C. Jutten, "Estimating the mixing matrix in Sparse Component Analysis (SCA) using EM algorithm and iterative bayesian clustering," in *European Signal Processing Conference (EUSIPCO)*, Lausanne, Switzerland, August 2008.

[34] R. Mahdian, M. Babaie-Zadeh, and C. Jutten, "Separation of speech sources in underdetermined case using SCA and time-frequency methods," in *International Symposium on telecommunications (IST2008)*, Tehran, Iran, August 2008, pp. 533–538.

[35] H. Palangi, A. Ghaffari, M. Babaie-Zadeh, and C. Jutten, "Image coding and compression with sparse 3D discrete cosine transform," in *Proceedings of 8th International Conference on Independent Component Analysis and Signal Separation (ICA2009), Springer LNCS 5441*, Paraty, Brazil, 15-18 March 2009, pp. 532–539.

[36] S.-M. Valiollah-Zadeh, H. Firouzi, M. Babaie-Zadeh, and C. Jutten, "Image denoising using sparse representations," in *Proceedings of 8th International Conference on Independent Component Analysis and Signal Separation (ICA2009), Springer LNCS 5441*, Paraty, Brazil, 15-18 March 2009, pp. 557–564.

[37] M. Babaie-Zadeh, V. Vigneron, and C. Jutten, "Sparse decomposition over non-full-rank dictionaries," in *Proceedings of* ICASSP2009, Taipei, Taiwan, 19–24 April 2009, pp. 2953–2956.

[38] A. Eftekhari, M. Babaie-Zadeh, C. Jutten, and H. Abrishami-Moghaddam, "Robust-SL0 for stable sparse representation in noisy settings," in *Proceedings of* ICASSP2009, Taipei, Taiwan, 19–24 April 2009, pp. 3433–3436.

[39] A. Ghaffari, M. Babaie-Zadeh, and C. Jutten, "Sparse decomposition of two dimensional signals," in *Proceedings of* ICASSP2009, Taipei, Taiwan, 19–24 April 2009, pp. 3157–3160.

[40] A. HesamMohseni, M. Babaie-Zadeh, and C. Jutten, "Inflating compressed samples: A joint source-channel coding approach for noise-resistant compressed sensing," in *Proceedings of* ICASSP2009, Taipei, Taiwan, 19–24 April 2009, pp. 2957–2960.

[41] H. Zayyani, M. Babaie-Zadeh, and C. Jutten, "Bayesian pursuit algorithm for sparse representation," in *Proceedings of* ICASSP2009, Taipei, Taiwan, 19–24 April 2009, pp. 1549–1552.

[42] H. Zayyani and M. Babaie-Zadeh, "Thresholded Smoothed-L0 (SL0) dictionary learning for sparse representations," in *Proceedings of* ICASSP2009, Taipei, Taiwan, 19–24 April 2009, pp. 1825–1828.

[43] M. Babaie-Zadeh, H. Mohimani, and C. Jutten, "An upper bound on the estimation error of the sparsest solution of underdetermined linear systems," in *Proceedings of* SPARS2009, Saint-Malo, France, 6–9 April 2009.

[44] H. Zayyani, M. Babaie-Zadeh, and C. Jutten, "Compressed sensing block MAP-LMS adaptive filter for sparse channel estimation and a bayesian cramer-rao bound," in *Proceedings of* MLSP2009, Grenoble, France, 2–4 September 2009.

[45] A. Ghaffari, H. Palangi, M. Babaie-Zadeh, and C. Jutten, "ECG denoising and compression by sparse 2D separable transform with overcomplete mixed dictionaries," in *Proceedings of* MLSP2009, Grenoble, France, 2–4 September 2009.

[46] F. Mokhtari, M. Babaie-Zadeh, and C. Jutten, "Blind separation of bilinear mixtures using mutual information minimization," in *Proceedings of* MLSP2009, Grenoble, France, 2–4 September 2009.

[47] Z. Sadeghipour, M. Babaie-Zadeh, and C. Jutten, "An adaptive thresholding approach for image denoising using redundant representations," in *Proceedings of* MLSP2009, Grenoble, France, 2–4 September 2009.

[48] S. Valiollahzadeh, M. Nazari, M. Babaie-Zadeh, and C. Jutten, "A new approach in decomposition over multiple-overcomplete dictionaries with application to image inpainting," in *Proceedings of* MLSP2009, Grenoble, France, 2–4 September 2009.

[49] A. Eftekhari, H. Abrishami-Moghaddam, and M. Babaie-Zadeh, "k/K-nearest neighborhood criterion for improvement of locally linear embedding," in *Proceedings of* CAIP2009 *(13th International Conference on Computer Analysis of Images and Patterns), Springer LNCS 5702*, Munster,Germany, 2–4 September 2009, pp. 808–815.

[50] A. Eftekhari, H. Abrishami-Moghaddam, M. Babaie-Zadeh, and M.-S. Moin, "Two dimensional compressive classifier for sparse images," in *Proceedings of* ICIP2009, Cairo, Egypt, 7–10 November 2009, pp. 2137–2140.

[51] M. Ataee, H. Zayyani, M. Babaie-Zadeh, and C. Jutten, "Parametric dictionary learning using steepest descent," in *Proceedings of* ICASSP2010, Dallas, Texas, USA, 14–19 March 2010, pp. 1978–1981.

[52] M. Akhbari, M. Babaie-Zadeh, E. Fatemizadeh, and C. Jutten, "An entropy based method for activation detection of functional MRI data using Independent Component Analysis," in *Proceedings of* ICASSP2010, Dallas, Texas, USA, 14–19 March 2010, pp. 2014–2017.

National Conferences

[1] M. Babaie-Zadeh and M. Tebyani, "Separating two overlapping speech signals," in *5th Iranian Conference on Electrical Engineering (ICEE)*, vol. 5, Tehran, Iran, May 1997, pp. 47–52, (in Persian).

[2] M. Babaie-Zadeh, C. Jutten, and K. Nayebi, "Compensation des réponse en fréquence des capteurs en séparation aveugle de sources," in *GRETSI'2001*, Toulouse, France, September 2001, pp. 399–402, (in French).

[3] H. Zayyani, S.-M. Valiollah-Zadeh, and M. Babaie-Zadeh, "Sparse Component Analysis (SCA) in random-valued and salt and pepper noise removal," in *proceedings of 16th Iranian Conference on Electrical Engineering (ICEE2008)*, vol. 5, Tehran, Iran, May 2008, pp. 300–305.

Invited Conferences

[1] M. Babaie-Zadeh and C. Jutten, "Source separation in convolutive post-non-linear mixtures." in *Invited talk in European meeting on ICA (without proceedings, website address: $http://ica.sa.infn.it/$)*, Vietri sul mare (Italy), 2002.

[2] C. Jutten, M. Babaie-Zadeh, and S. Hosseini, "On blind methods in signal processing," in *IVth international workshop on computational problems of electrical engineering*, Zakopane, Poland, September 2002, pp. 1–12, (invited paper).

[3] M. Babaie-Zadeh and C. Jutten, "Semi-blind approaches for source separation and independent component analysis," in *Proceedings of ESANN'06*, April 2006, pp. 301–312.

[4] C. Jutten and M. Babaie-Zadeh, "Source separation: Principles, current advances and applications," in *IAR Annual Meeting*, Nancy, France, November 2006.