Curriculum Vitae (C.V.)

(Updated February 2025)

Massoud BABAIE-ZADEH

Full Professor of Sharif University of Technology;
Senior Member of the IEEE;
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h-index: 34;
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Education

1/1997–9/2002 **PhD 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 was 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 **MSc on Digital Electronics**, *Sharif University of Technology*, Tehran, IRAN, GPA: **18.62/20** (Rank 1).

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

My Master Thesis

Title: *Separating two overlapping speech signals*

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

Description: This master thesis was on separating two mixed speech 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.

My PhD 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 PhD 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 believed that general nonlinear mixtures might be separable if we assume that the mixing system is '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*,
5. Pr. Jean-François CARDOSO, ENST Paris, *reviewer*,
6. Pr. Masoomeh NASIRI, Sharif University of Technology, *examiner*.

Faculty membership at Sharif University of Technology

I became a faculty member of the Electrical Engineering Department of *Sharif University of Technology* on October 2003:

2003-2008 Assistant Professor,

2008-2015 Associate Professor.

Since Dec. 2015 Professor.

Moreover:

- I got "tenure" in July 2010.
- I became a "Senior Member" of the IEEE in July 2009.

Visiting professor experiences

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

July 2008 (one month) **Invited assistant professor (Maître de Conférence Invité)**, *Université d'EVRY Val d'Esonne*, Paris, France.
Working with Dr. Vincent Vigneron.

October 2010 to October 2011 (1 year) **Visiting faculty**, *University of Minnesota*, Minneapolis, USA.
Working with Professor Georgios Giannakis.

2013-2018 From 2013 to 2018, I was a team member of a 5-year European (ERC) project called "Challenges in Extraction and Separation of Sources (CHESS)", led by Professor Christian Jutten in Grenoble, France. The following three visits are in the framework of that project:

July 2016 (one month) **Invited visiting professor**, *GIPSA-Lab*, Grenoble, France.
Working with Professor Christian Jutten.

June 2017 (two weeks) **Invited visiting professor**, *GIPSA-Lab*, Grenoble, France.
Working with Professor Christian Jutten.

July 2018 (three weeks) **Invited visiting professor**, *GIPSA-Lab*, Grenoble, France.
Working with Professor Christian Jutten.

Teaching

In Sharif University of Technology, a faculty member is usually expected to teach 4 courses per year (2 courses per semester), plus supervising BSc, MSc and PhD students. Each (3 unit) course, consists of 3 hours of teaching per week, and each semester consists of 15 weeks of teaching and 2 weeks of exams. So, each (3 unit) course consists of 45 hours of teaching per semester, and a faculty member is expected to teach 180 hours per year.

I have taught the following courses in Sharif University of Technology since 2003:

- "Adaptive Filters theory" (17 times, each time 45 hours), *graduate*.
- "Numerical Optimization" (15 times, each time 45 hours), *graduate*. Designed by myself and taught for the first time in fall 2007.
- "Blind Source Separation (BSS) and Sparse Signal Processing" (11 times, each time 45 hours), *graduate*. Designed by myself and taught for the first time in spring 2009.
- "Digital Signal Processing" (12 times, each time 45 hours), *undergraduate/graduate*.
- "Signals&Systems" (11 times, each time 45 hours), *undergraduate*.
- "Multimedia Signal Processing" (twice, each time 45 hours), *undergraduate/graduate*. Designed by myself and taught for the first time in spring 2006, and the last time on 2012.

- "Probability and Statistics" (once, 45 hours), *undergraduate*.
- "Digital Design" (once, 45 hours), *undergraduate*.

Research

As a faculty member of Sharif University of Technology, my main research topic had been signal processing. I have worked, with the help of my students, mostly on theoretical problems in signal processing. However, we had always applications in mind and/or work directly on some applications, both as the main source of identifying theoretical problems, and also for evaluating our theoretical results. Moreover, we have always tried to develop results as rigorous as we could, *e.g.* by studying the convergence of our developed algorithms.

My research on signal processing had been in the following major topics:

- Blind Source Separation (BSS),
- Sparsity-aware signal processing,
- and more recently, Graph Signal Processing (GSP).

The details of my graduate students and publication list is given later in this CV. However, as some of my main contributions, I would like to highlight the followings:

2002 • In my PhD thesis, working on BSS, I developed a general approach for Mutual Information Minimization. Minimizing mutual information not only is used for BSS, but also in some other areas (*e.g.* telecommunication). For doing this, I developed a kind of "gradient" for mutual information.

2009 • In sparsity-aware signal processing, as a result of a BSc project of my student (Mr. Hossein Mohimani), we developed an algorithm for sparse recovery, called SL0. The main idea is to replace L0 pseudo-norm by its "smoothed" version (hence the name "Smoothed L0" or SL0), whose minimization can be done effectively instead of a combinatorial search. Thanks to its advantages, SL0 has become a well-known and widely-used sparse recovery algorithm (with around 1300 citations).

2009 • In two ICASSP2009 papers (one of them with my MSc student, Mr. Ali Hesam-Mohseni), we studied the advantages of non-full-rank matrices for compressed sensing. We explained that they are similar to joint source-channel coding in telecommunication.

2009 • With my MSc student, Mr. Aboozar Ghaffari, we developed two-dimensional sparse representation. This approach highly reduces the computational and memory costs of sparse representation for image processing applications.

2011 • With my MSc student, Mr. Merrikh-Bayat, we developed a method based on BSS for removing show-through from scanned books. To do this, we first modeled this mixture by a BSS model that is both nonlinear and convolutive. Then, we proposed an approach to solve this BSS problem.

2013 • With my MSc (later also PhD) student, Mr. Mostafa Sadeghi, we developed a new approach for dictionary learning, which in comparison with previous approaches was similar to going from Steepest Descent algorithm to Newton algorithm in optimization. The paper was nominated for a best paper award of IEEE Signal Processing Letters (but not finally won).

2017 • With two of my BSc students, Mr. Milad Kharratzadeh and Mr. Arsalan Sharifnassab, we studied a property of sparse recovery algorithms that we called "invariancy". We showed that sparse recovery algorithms having this property are highly less sensitive to the conditioning of the dictionary. For example, in compressed sensing, the reconstruction quality is highly less sensitive to the conditioning of the measurement matrix. This is more or less similar to invariancy property for optimization algorithms and also to "equivariancy" property for blind source separation (BSS) algorithms. As an application, we showed that in directional-of-arrival (DOA) estimation based on sparse recovery, if the algorithm used for the sparse recovery stage is invariant, then the final estimation is almost independent of the position of the sensors (provided that the number of sensors is large enough). It is worth mentioning that although the paper has been published in 2017, the work had been done several years before, but publishing it took some time.

2023 • Graph signals are extensions of traditional signals. In other words, traditional signals can be seen as graph signals reside all on the same specified graph. In a recently published (2023) paper with my MSc student (Ms. Sara Mohammadi), we studied the problem of blind separation of graph signals, and we showed that, contrary to traditional signals, they can be separated by having only one mixture of them. This is interesting because in BSS of traditional signals, typically more than one mixture is required. However, for graph signals, one can implicitly use the difference of the graphs on which the signals reside to separate them only by having one mixture.

Laboratory directorship

Signal Processing research laboratory: Since 2004, I have been the director of the Signal Processing research laboratory in Sharif University of Technology. This is a small laboratory composed of about 15 students in PhD, MSc and BSc levels, and since then it has been very active specially in theoretical research on Blind Source Separation (BSS) and Sparsity-aware Signal Processing.

Educational laboratory on digital signal processing: I, with the help of 4 BSc students, established in 2007 an 'educational' laboratory to teach working with Digital Signal Processors (based on TMS320C6416). As far as I know, this was the first time that such a lab was established in an Iranian university. This is a 1 unit course, in which students learn to work with TMS320C6416 DSP's by doing practical experiments. After designing the instruction manual and buying a set of boards, the course was first presented in 2007 in the room of our signal processing 'research' lab. After 6 consecutive presentations of the course and correcting the instruction manual several times, since fall 2010, this educational laboratory was moved to its own and separate room called "DSP educational lab".

The lab was modified in 2017, with the help of 3 students, to include experiments with Raspberry-Pi boards and software-defined radio (SDR) modules using MATLAB. I am still the manager of this lab.

Supervised Theses

In summary, I have supervised/co-supervised:

- 7 finished PhD thesis,
- 53 finished MSc theses,
- 2 running MSc theses,
- 2 running PhD theses.

The details are given below.

Finished PhD thesis

2010 1. Mr. Hadi Zayyani, "SCA and its applications." He is now an associate professor of Qom University of Technology, Qom, Iran.

2015 2. Mr. Mohammad-Reza Malek-Mohammadi, "Sparse representation and its applications in multi-sensor problems." He is now a researcher at Ericsson, Sweden.

2017 3. Mr. Alireza Hariri, "Signal processing in compressed sensing domain without signal reconstruction." He is now a researcher at Zaeim company, Tehran, Iran.

2018 4. Ms. Farnaz Sedighin, "Multimodal blind source separation." She is now an assistant professor at Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences, Isfahan, Iran.

2018 5. Mr. Mostafa Sadeghi, "Dictionary learning for high dimensional data." He is now a researcher at INRIA, Nancy, France.

2018 6. Ms. Bahram Ehsandoust, "Blind source separation in nonlinear mixtures." This was a joint PhD thesis, co-supervised with Professor Christian Jutten and Professor Bertrand Rivet in University of Grenoble-Alpes (UGA) in Grenoble, France. He is now at Cafe-Bazar company, Tehran, Iran.

2022 7. Ms. Elaheh Sobhani, "Advances in Tensor Analysis with Applications in Text Mining." This was a joint PhD thesis, under co-supervision with Professor Pierre Comon and Professor Christian Jutten, from GIPSA-lab, Grenoble, France. She is now a post-doc researcher at Moffitt Cancer Center, Florida, USA.

Finished MSc theses

2003 1. Ms. Samareh Samadi, "Adaptive techniques for estimating Score Function Difference (SFD) and its application to Blind Source Separation." In reality, I was the first supervisor of this thesis, but since at that time I was doing my national services in the university and I was not yet a faculty member, officially, I was only a consultant (and the official supervisor was Dr Kambiz Nayebi).

2004 2. Mr. Mahmoud Ferdosi-Zadeh, "Blind Separation of Speech Signals." In reality I was the first supervisor, but officially, with reasons similar to above, I was the second supervisor (not consultant however as above). The first supervisor was officially Dr Farokh A. Marvasti.

2004 3. Mr. Hamed Moti-ian, "Blind separation of speech signals in the frequency domain." Co-supervised with Dr. Farokh A. Marvasti. I was the first supervisor.

2005 4. Mr. Mazda Hamdi, "Using Blind Source Separation techniques for beamforming." Co-supervised with Dr. Farokh A. Marvasti. I was the first and main supervisor.

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. Armin Eftekhari, "Identification based on Retinal Images." He was an MSc student of Khajeh-Nasir University (working with Dr Hamid Abrishami-Moghaddam), and I was a consultant of this MSc thesis.

2009 12. Ms. Zahra Sadeghipour, "Image denoising based on sparse decomposition."

2009 13. Mr. Hamid Palangi, "Image compression based on sparse decomposition and Mixed-Transform techniques."

2009 14. Ms. Fatemeh Mokhtari, "Removing show-through effect of scanned documents using nonlinear BSS techniques."

2010 15. Ms. Mahsa Akhbari, "Activation detection in fMRI images based source separation." Co-supervised with Dr. Emad Fatemizadeh. I was the second supervisor.

2010 16. Mr. Rad Nia-Zadeh, "Sparse Channel Estimation."

2010 17. Mr. Sina Hamidi, "Application of Sparse Decomposition to Optical Character Recognition (OCR)."

2010 18. Mr. Kian Hajisami, "Application of Blind Source Separation in Information Hiding."

2011 19. Ms. Sara Nayyer, "Applications of Sparse representation in image processing."

2011 20. Ms. Azar Zandifar, "Applications of Blind Source Separation and Nonnegative Matrix Factorization in unmixing hyperspectral date."

2012 21. Mr. Hooshang Ghasemi, "Applications of Matrix Completion in Image Processing."

2012 22. Mr. Mohammad-Mehdi Mojahedian, "Applications of Matrix Completion in Telecom."

2012 23. Mr. Mohsen Amid-Zadeh, "Source localization and tracking".

2012 24. Mr. Mostafa Sadeghi, "Dictionary Learning for Sparse Representation".

2013 25. Mr. Mojtaba Sahraee, "Applications of Sparse Representation in Image Superresolution."

2013 26. Mr. Ali Hashemi, "Compressed Spectrum Sensing in Cognitive Radio Networks." Co-supervised with Pr. Masoumeh Nasiri-Kenari. I was the second supervisor.

2013 27. Mr. Majid Ghassimi, "Blind separation of underdetermined mixtures of speech signals based on sparse representation."

2014 28. Mr. Mohsen Ghassimi, "Distributed Compressed Sensing and its applications in Distributed Sensor Networks."

2014 29. Mr. Sajjad Daei, "Algorithms for sparse channel estimation."

2014 30. Mr. Sajjad Amini, "Dictionary learning and its application in image denoising."

2014 31. Ms. Sepideh Azarian, "Digital Image Forensics."

2014 32. Mr. Mehdi Ghamchili, "Classification of different mental activities based on Riemannian geometry."

2015 33. Ms. Elaheh Sobhani, "Pupil Detection and Eye Tracking."

2015 34. Mr. Ali Mehrpooya, "Sparse Representation Based Image Inpainting."

2015 35. Mr. Milad Nazari, "Sparse Representation-based Classification and Application to Image and Speech Processing."

2016 36. Ms. Maryam Tavakkol Elahy, "Design and implementation of a hand gesture recognition system."

2016 37. Mr. Ali Shahin Shamsabadi, "Automatic Learning of Image Features by Using Deep Sparse Networks."

2019 38. Mr. Javad Parsa, "Dictionary learning for sparse representation."

2019 39. Mr. Mohammad Sabaghi, "Graph Signal Processing (GSP) and its applications in image compression."

2019 40. Mr. Zahra Dehghani-Tafti, "Image inpainting using sparse representation."

2019 41. Mr. Firooz Shahriari-Mehr, "Two dimensional dictionary learning."

2020 42. Mr. Amir-Ehsan Khorashadi-Zadeh, "Compressive Machine Learning."

2021 43. Mr. Amir-Hossein Daghestani, "Graph signals with multiple edge types and their applications."

2022 44. Ms. Fatemeh Keshvari, "Machine Learning in 2D Compressed Sensing datasets."

2022 45. Ms. Sara Mohammadi, "Graph Signal Separation Based on Smoothness or Sparsity in the Frequency Domain." [Cosupervised with Dr. Dorina Thanou]

2022 46. Mr. Ali Khanzamani Mohammadi, "EEG Source Localization using Block Sparse Structure in Reduced Dimension leadfield." [Cosupervised with Dr. Ali Ghazizadeh]

2022 47. Mr. Saeed Mohseni, "Dictionary Learning for Sparse Representation based Classification."

2022 48. Mr. Ehsan Noshahri, "Application of Sparse Representations in Adversarial Machine Learning."

2023 49. Mr. Ali Fakhar, "Improving the Performance of Graph Filters and Learnable Graph Filters in Graph Neural Networks."

2024 50. Mr. MohammadHasan AhmadYarandi, "Separation of Smooth Graph Signals Based on a Single Observed Mixture."

2024 51. Mr. Navid Farmahini-Farahani, "Graph Signal Prediction using Graph and Temporal Smoothing."

2024 52. Mr. AliReza Jafari, "Sparse Signal Recovery based on parallel processing approaches."

2024 53. Mr. Seyed Sadra Siahpoush, "Blind Speech Separation in Convolutive Mixtures."

Current PhD theses

2023 1. Mr. Mohammad SADEGHI-GHARTAVOL, "Optimal sensor placement for source separation." [Under co-supervision with Professor Bertrand RIVET, Grenoble, France]

2024 2. Ms. Noushin Afzali, "Parallel algorithms for sparse recovery."

Current MSc theses

2025 1. Mr. AmirHossein MalekSabet, "Multiple Acoustic Source Localization."

2025 2. Mr. AliReza Noori, "Graph Learning from Incomplete Graph Signals."

BSc projects

2003–present I have supervised a lot of BSc 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).

Journal and conference activities

Journal Editorial Board

2016-present Since 2016, I am in the editorial board of "Signal Processing" journal. This is a publication of the European Association for Signal Processing (EURASIP) and is published by Elsevier.

2023 Since October 2022, I am in the Senior Editorial Board of "IEEE Signal Processing Magazine."

Conferences

LVA/ICA2017 **Technical Program co-chair** of 13th International Conference on Latent Variable Analysis and Signal Separation. I and Dr. Petr Tichavsky (from Institute of Information Theory and Automation, Prague, Czech Republic) were the technical program chairs of this conference, which was held in Grenoble, France, on February 2017.

ICEE2015 **Program chair** of 23'th Iranian Conference on Electrical Engineering (ICEE). I was the program chair ("DABIR"), meaning the responsible for everything. It was a very big conference (with around 1233 submitted and 521 accepted papers, 11 tutorials, 7 keynotes, 3 panels, and more than 1000 participants), and was held in Sharif University of Technology, on May 2015.

ICEE2007 **Organizer of a workshop** in Iranian Conference on Electrical Engineering (ICEE; the largest Iranian conference on EE) in ICEE2007 (held in Iran Telecom Research Center). The workshop was titles "Blind Source Separation (BSS) and Independent Component Analysis (ICA): theory, applications and perspectives".

ESANN2006 **Organizer and session chair** of a special session in 14th European Symposium on Artificial Neural Networks (ESANN), 2006, Belgium. Done with Prof. Christian Jutten. Session title: "Semi-Blind Approaches for Source Separation and Independent component Analysis".
URL: `http://www.dice.ucl.ac.be/esann/proceedings/papers.php?ann=2006` .

EUSIPCO2005 **Organizer and session chair** of a special session in 13th European Signal Processing Conference (EUSIPCO), 2005, Turkey. Done with Prof. Christian Jutten.
Special session title: "Novel Directions in Information Theoretic Approaches to Source Separation and Estimation".
URL: `http://www.eusipco2005.org/special_sess.html` .

ICEE **Session chair** of several sessions in several Iranian Conferences on Electrical Engineering (ICEE); namely in ICEE2008 (held in Tarbiat-e-Modarres University), ICEE2009 (held in Iran University of Science and Technology) and ICEE2010 (held in Isfahan University of Technology).

Technical Program Committee of conferences

I was a member of Technical Program Committee of the following conferences:

MLSP2008 IEEE International Workshop on Machine Learning For Signal Processing (MLSP), 2008, Mexico (`http://mlsp2008.conwiz.dk/index.php?id=45`).

MLSP2010 IEEE International Workshop on Machine Learning For Signal Processing (MLSP), 2010, Finland (`http://mlsp2010.conwiz.dk/index.php?id=45`).

ICA2009 8'th International Conference on Independent Component Analysis and Signal Separation (ICA), 2009, Brazil (`http://www.ica2009.org/`).

ICA2010 9'th International Conference on Latent Variable Analysis and Signal Separation (LVA/ICA), 2010, France (`http://lva2010.inria.fr/committees`).

ICEE Several Iranian Conferences on Electrical Engineering (ICEE); namely ICEE2006, ICEE2008, ICEE2009, and ICEE2010.
Moreover, in 2009 and 2010, I was the representative of Sharif University of Technology in the "Permanent Committee" of this conference.

Reviewer

Naturally, I have reviewed many papers for many journals and conferences:

Journals include IEEE Transactions on Signal Processing, IEEE Signal Processing letters, Signal Processing (Elsevier), and IEEE Transactions on Neural Networks.

Conferences include IEEE International Symposium on Circuits and Systems (ISCAS), Independent Component Analysis and Signal Separation (ICA), European Symposium on Artificial Neural Networks (ESANN), European Signal Processing Conference (EUSIPCO), IEEE Workshop on Machine Learning for Signal Processing (MLSP), IEEE Digital Signal Processing Workshop (DSP), Iranian Conference on Electrical Engineering (ICEE).

I have also reviewed several project proposals and/or evaluated projects, including reviewing one proposal for Croatian Science Foundation and many for Iran National Science Foundation (INSF).

Honors and Awards

1990 Rank 22 (in the whole country) among more than 200,000 participants in the national exam ('concours') for university entrance in Iran. Thanks to this rank, I could choose any major and any university to continue my studies, and I chose Electrical Engineering and Isfahan University of Technology.

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

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

2015, 2021 Officially selected twice (once in 2015 and once in 2021) by Sharif University of Technology as the best course lecturer of the Electrical Engineering Department.

2008 Unofficially 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.

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 MSc students of digital electronics at Sharif university of technology, Tehran, Iran.

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

1999 French government grant for preparing a PhD

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

July 2009 Becoming a "Senior Member" of the IEEE.

Services to my department

Sep. 2009 to Sep. 2010 I was the vice president for student affairs ("MOAVEN-e-DANESHJOOEE" in Persian) of the EE department of Sharif University of Technology.

Mar. 2019 to Oct. 2022 Again, I was the vice president for student affairs of the EE department of Sharif University of Technology.

Oct. 2018 to Oct. 2022 I was the evaluator of the research profiles of the faculty members of the EE department.

2005 to 2010 I was very active (especially in 2005-2006) in the EE department of Sharif University of Technology for creating a new major, "Digital Systems", in the EE department.

2006-present I was the inviter and host of several French professors to Sharif for talks and/or research collaboration: Prof. Christian Jutten from university of Grenoble, France (many times since 2006), Prof. Vincent Vigneron from university of Evry (2006), Prof. Laurent Girin from university of Grenoble (2008), Prof. Ali Mohammad-Djafari from CNRS, France (2015), and Prof. Bertrand Rivet from university of Grenoble, France (2018).

2009-present Since 2009, I am the representer of Sharif University of Technology in the "permanent committee" of the Iranian Conference on Electrical Engineering (ICEE).

2008-2010 I was the representer of the head of the EE department in the executive committee of Alumni Association of Sharif university in the EE department.

Experiences before becoming a faculty member

Before becoming a faculty member of Sharif University (in October 2003), during my MSc 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.

Industrial experiences during my MSc and PhD studies

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 1000 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.

Academic experiences during my MSc and PhD 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.

Experiences after my PhD but before becoming a faculty member

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 Canceller" to be used in digital telephone switches.

4/2003–10/2003 My national services in Iran (teaching in Sharif university, but without a complete salary). 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 obtained an exemption of service because of my 3rd rank in MSc national concours in Iran.

Languages

Persian native language

English reading, writing, speaking

French reading, writing, speaking

Publications

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. [Online]. Available: http://www.elsevier.com/wps/find/bookdescription.cws_home/717222/description#description

Journals

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