Curriculum Vitae

Personal information

Surname(s) / First name(s)	**Fira, Catalina Monica**
Address(es)	Str. T. Codrescu nr.2, cod 700481, IASI, Romania
Telephone(s)	+40 332 106505 Mobile: 0741027527
E-mail	monica.fira@iit.academiaromana-is.ro
Nationality	Romanian
Date of birth	June 2, 1976
Gender	female

Work experience

Dates	August 2018 - onwards
Occupation or position held	Current position: Researcher II
Main activities and responsibilities	research activities
Name and address of employer	Institute of Computer Science, Romanian Academy, Iasi Branch
Type of business or sector	Research activities
Dates	July 2011 - August 2018
Occupation or position held	Current position: Researcher III
Main activities and responsibilities	research activities
Name and address of employer	Institute of Computer Science, Romanian Academy, Iasi Branch
Type of business or sector	Research activities
Dates	January 2007 – July 2011
Occupation or position held	Current position: Researcher
Main activities and responsibilities	research activities
Name and address of employer	Institute of Computer Science, Romanian Academy, Iasi Branch
Type of business or sector	Research activities

M Fira

Education and training

Dates	2010- 2012
Title of qualification awarded	PostDoctoral studies – CNCSIS –PNII - RU - projects
Name and type of organisation providing education and training	Romanian Academy, Iasi Branch
Dates	2002-2006
Title of qualification awarded	Doctoral studies PhD, 2006 Thesis title: "Contributions to biomedical signal processing"
Name and type of organisation providing education and training	Technical University of Iasi, Romania
Dates	1995 - 2001
Title of qualification awarded	University studies Bioengineer
Name and type of organisation providing education and training	University of Medicine and Pharmacy "Gr T. Popa " Iasi, Romania Faculty of Medical Bioengineering

Personal skills and competences

Mother tongue(s)	**Romanian**
Other language(s)	**English**

Self-assessment

Understanding		**Speaking**		**Writing**
Listening	Reading	Spoken interaction	Spoken production	
English	Basic user	Basic user	Basic user	Basic user	Basic user

Technical skills and competences	biomedical signal processing, digital signal processing algorithms, artificial neural networks
Computer skills and competences	MATLAB/Simulink programming, NeuroSolutions Competent with Microsoft Office programmes

Books and book chapters:

1. Brezulianu, M. Fira, "Procesarea semnalelor biomedicale si aplicatii", Editura Politehnium, Iasi, septembrie 2010, ISBN:978-973-621-308-3

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2. A. M. Lazar, L. Davea, M. Fira, A. Maiorescu, B. Teodorescuy, R. Urseleanu, "Interfata creier - calculator; Implementarea paradigmelor", Ed. Cermi, 2009, ISBN: 978-973-667-369-6
3. A. Brezulianu, I. Ciocoiu, M. Fira, Chapter 10 "Electrocardiographic Signal Processing Applications in Telemedicine", in book "Handbook of Research on Developments in e-Health and Telemedicine: Technological and Social Perspectives", edited by M. Manuela Cunha, António Tavares and Ricardo Simões, Medical Information Science Reference Publicher, ISBN: 978-1-61520-670-4, December 2009

Journals:

1. M. Fira, H-N. Costin, L. Goras, A Study on Dictionary Selection în Compressive Sensing for ECG Signals Compression and Classification, BIOSENSORS-BASEL, Volume12, Issue3, Article Number 146, https://doi.org/10.3390/bios12030146, 2022 **(Impacf factor = 5.52 , Q1** indexata ISI -Thomson Reuters)
2. M. Fira, H-N. Costin, L. Goras, On the Classification of ECG and EEG Signals with Various Degrees of Dimensionality Reduction, BIOSENSORS-BASEL, Volume11, Issue5, Article Number161, DOI10.3390/bios11050161, 2021 **(Impacf factor = 5.52, Q1** indexata ISI -Thomson Reuters)
3. M. Fira, L. Goras, ECG and EEG Pattern Classifications and Dimensionality Reduction with Laplacian Eigenmaps, International Journal of Advanced Computer Science and Applications (IJACSA), Volume11, Issue3, Page 42-48, 2020 (revista indexata ISI - Thomson Reuters)
4. M. Fira, L. Goras, On Some Methods for Dimensionality Reduction of ECG Signals, International Journal of Advanced Computer Science and Applications (IJACSA), Volume 10, Issue 9, Page 326-331, 2019 (revista indexata ISI - Thomson Reuters)
5. M. Fira, L. Goras, A. Lazar On P300 detection using scalar products, International Journal of Advanced Computer Science and Applications (IJACSA), Vol. 9, No. 1, 2018 (revista indexata ISI - Thomson Reuters)
6. Monica Fira, Liviu Goras, Comparison of inter-and intra-subject variability of P300 spelling dictionary in EEG compressed sensing, International Journal of Advanced Computer Science and Applications (IJACSA), Vol. 7, No. 10, 2016 (revista indexata ISI - Thomson Reuters)
7. Monica Fira, Compressed Sensing of Multi-Channel EEG Signals: quantitative and qualitative evaluation with Speller Paradigm, International Journal of Advanced Computer Science and Applications (IJACSA), Vol. 7, No. 6, 2016 (revista indexata ISI - Thomson Reuters)
8. Adrian Brezulianu, Monica Fira, Marius Daniel Pestina, Compressed Sensing Based Encryption Approach for Tax Forms Data, International Journal of Advanced Research in Artificial Intelligence (IJARAI), Volume 4 Issue 11, 2015
9. Oana-Diana Eva, Anca Mihaela Lazăr, Monica Fira, Normalized Itakura Distance for MU Rhythm, Buletinul Institutului Politehnic din Iaşi, Tomul LIX (LXIII), Fasc. 4, 2015, Secţia, Electrotehnică, Energetică, Electronică, pp. 91- 101
10. M. Fira, L. Goras, Compressed Sensed ECG Signals using Patient Specific Dictionaries, Buletinul Institutului Politehnic din Iaşi, Secţia Electrotehnică, Energetică, Electronică, 2014
11. L. Goras, M. Fira, Review of Recent Results on ECG Compression and Classification, Buletinul Institutului Politehnic din Iasi, Tomul LX (LXIV), Fasc. 1, 2014
12. Fira, M., Goras, L., "A New Method for EEG Compressive Sensing," Advances in Electrical and Computer Engineering, vol. 12, no. 4, pp. 71-76, 2012, (**Impacf factor = 0.7** indexata ISI -Thomson Reuters)
13. M. Fira, L.Goras, N. Cleju, C. Barabasa, "On the Projection Matrices Influence in the Classification of Compressed Sensed ECG Signals", International Journal of Advanced Computer Science and Applications, IJACSA Volume 3 Issue 8, pp 141 – 145, 2012, pp 141-145, ISSN: 2158-107X (indexata ISI -Thomson Reuters)
14. A. Brezulianu, M. Fira, L. Fira, „A genetic algorithm approach for scheduling of resources in well-services companies", International Journal of Advanced Research in Artificial Intelligence, IJARAI, Vol. 1, No. 5, pp 1-6, 2012, 2012, pp 1-6, ISSN: 2165-4050
15. A. Brezulianu, M. Fira, L. Fira, "A genetic algorithm approach for a constrained employee scheduling problem as applied to employees at mall type shops", International Journal of Advanced Science and Technology, Vol. 14, January 2010, pag 53 - 64, ISSN: 2005-4238
16. A. Brezulianu, M. Fira, „Integrated Information System of Monitoring and Management for Heart Centers", International Journal of Advanced Research in Artificial Intelligence, IJARAI, Vol. 1, No. 5, pp 16 - 21, 2012, 2012, 16-21, ISSN: 2165-4050
17. M. Fira, Detection of P300 in a BCI Speller, "Communications in Computer and Information Science", Convergence and Hybrid Information Technology, Volume 206 / 2011, Part 7, pag. 481-487, Springer-Verlag Berlin Heidelberg 2011, pp 481-487, ISSN: 1865-0929 (revista indexata ISI -Thomson Reuters)

MFira

18. M. Fira, L. Goraş, C. Barabasa, N. Cleju, "On ECG Compressed Sensing using Specific Overcomplete Dictionaries", Advances in Electrical and Computer Engineering, Vol. 10, Nr. 4, 2010, pp. 23- 28, ISSN 1582-7445 (**Impacf factor = 0.7** indexata ISI -Thomson Reuters)
19. M. Fira, L. Goras, "Biomedical Signal Compression based on Basis Pursuit", International Journal of Advanced Science and Technology, Science and Engineering Research Support Center (SERSC), Vol. 14, pag. 1-14, January 2010, ISSN: 2005-4238
20. A. Brezulianu, M. Fira, E. Gazzi, L. Sorodoc: „A Computerized Data Analysis Method for Electrogastrogaphyc Signals", Revista Medico-Chirurgicala a societatii de medici si naturalisti din Iasi, volumul 113 (2009), numarul 1 , pp. 120, ISSN: 0048-7848, 2009
21. M. Negoita (Fira), L. Goras, "An ECG Signals Compression Method and Its Validation Using NNs", IEEE Transactions on Biomedical Engineering, Vol. 55, No. 4, 1319 – 1326, April 2008 (**Impacf factor = 2.5 Q1** indexata ISI -Thomson Reuters)
22. M. Negoita (Fira), L. Goras, "The R-wave Detection with Low Computation Complexity Based on the Pan-Tompkins Algorithm", Buletinul Institutului Politehnic Din Iasi, Tomul L (LIV), Fasc. 3-4, 2004, Electrotehnica, energetică, Electronică
23. M. Negoita (Fira), L. Goras, "A Robust Algorithm for Accurate QRS Complex Detection", Buletinul Institutului Politehnic Din Iasi, Tomul L (LIV), Fasc. 1-2, 2004, Electrotehnica, energetică, Electronică

Conferences:

24. M. Fira, L. Goras, On the Classification of ECG Signals Subject to Various Degrees of Dimensionality Reduction, International Conference on e-Health and Bioengineering, EHB 2020, Iasi (conferinta indexata IEEE Xplore si ISI proccedings)
25. M. Fira, L. Goras, Dimensionality Reduction for ECG Signals; Laplacian Eigenmaps and Locality Preserving Projections, International Symposium on Signals, Circuits and Systems (ISSCS), 2019, Iasi, Romania (indexata IEEE Xplore și ISI proccedings)
26. Monica Fira, *The EEG Signal Classification In Compressed Sensing Space*, The Twelfth International Multi-Conference on Computing in the Global Information Technology, ICCGI 2017, Nice, Franta, 23 -27 iulie 2017
27. Monica Fira, Liviu Goras,*"On the size of the universal dictionaries used in EEG P300 spelling paradigm based on compressed sensing"*, 9Th International Conference on Bioinformatics and Biomedical Technology (ICBBT 2017), Lisabona, Portugalia, 14-16 mai 2017 (ISI proccedings)
28. Monica Fira, Andrei Maiorescu, *P300 spelling and EEG compressed sensed based on a universal megadictionary*, International Conference on Intelligent Software Methodologies, Tools and Techniques - SOMET 2016, Larnaca, Cipru, 12-14 septembrie 2016 (Volume 286: New Trends in Software Methodologies, Tools and Techniques, Series Frontiers in Artificial Intelligence and Applications, IOS press, DOI 10.3233/978-1-61499-674-3-203, pp: 203 - 212) (Revista BDI)
29. Monica Fira, Liviu Goras, *On Compressed Sensing for EEG Signals - Validation with P300 Speller Paradigm*, International Conference on Communications, COMMS 2016 , Bucharest, Romania, 9-11 iunie 2016, DOI: 10.1109/ICComm.2016.7528296 (conferinta indexata IEEE Xplore si ISI proccedings)
30. Monica Fira, Liviu Goras, Victor-Andrei Maiorescu, *The Analysis of the Specific Dictionaries for Compressive Sensing of EEG Signals*, International Conference on Advances in Computer-Human Interactions - ACHI 2016, Veneția, Italia, 24-28 aprilie 2016
31. Monica Fira, Liviu Goras, Victor-Andrei Maiorescu and Mihaela Catalina Luca, *Compressed Sensing and Clasification of Cardiac Beats Using Patient Specific Dictionaries*, International Conference of Information and Communication Technologies for Ageing Well and e-Health - ICT4AWE2016, Roma, Italia, 21-22 aprilie 2016 (ISI proccedings)
32. Oana-Diana Eva, Anca Mihaela Lazăr, Monica Fira, *Normalized Itakura Distance for MU Rhythm*, Buletinul Institutului Politehnic din Iaşi, Tomul LIX (LXIII), Fasc. 4, 2015, Secţia, Electrotehnică, Energetică, Electronică, pp. 91- 101 (Revista BDI)
33. Fira Monica, *Applications of Compressed Sensing: Compression and Encryption*, International Conference on e-Health and Bioengineering, EHB 2015, 19-21 Noiembrie, Iasi, Romania (conferinta indexata IEEE Xplore si ISI proccedings)
34. Monica Fira, Liviu Goraş, A New Method for ECG Compression Evaluation, Proceedings of International Symposium on Signals, Circuits and Systems ISSCS 2015 (CDROM), 9-10 July, Iasi, Romania. (ISI proccedings)
35. Fira Monica, Applications of Compressed Sensing: Compression and Encryption, International Conference on e-Health and Bioengineering, EHB 2015, 19-21 Noiembrie, Iasi, Romania (ISI proccedings)
36. M. Fira, R. Aldea, A.Lazar, L. Goras, Classifications of Motor Imagery Tasks in Brain Computer Interface Using Euclidean Distance, 12th Symposium on Neural Network Applications in Electrical Engineering, NEUREL 2014, 25 – 27 Noiembrie 2014, Belgrad, (conferinta IEEE - ISI proccedings)

MFira

37. R. Aldea, M. Fira, A. Lazăr, Classifications of Motor Imagery Tasks Using K-Nearest Neighbors, 12th Symposium on Neural Network Applications in Electrical Engineering, NEUREL 2014, 25 – 27 Noiembrie 2014, Belgrad, (conferinta IEEE - ISI proccedings)
38. M. Fira, L. Goras, On projection matrices and dictionaries in ECG compressive sensing - a comparative study, 12th Symposium on Neural Network Applications in Electrical Engineering, NEUREL 2014, 25 – 27 Noiembrie 2014, Belgrad, (conferinta IEEE -ISI proccedings)
39. M. Fira, L. Goras, C. Barabasa, Reconstruction of Compressed Sensed ECG Signals Using Patient Specific Dictionaries, International Symposium on Signals, Circuits and Systems- ISSCS 2013, Iasi, Romania
40. M. Fira, L. Goras, N. Cleju, C. Barabasa, „Results on ECG Compressed Sensing using Specific Dictionaries and its Validation", International Conference on Information Technology Interfaces – ITI 2012, 25 – 28 Iunie 2012, Dubrovnik, Croatia, pp. 423-428, ISBN: 978-953-7138-24-0, ISSN: 1330-1012 (conferinta IEEE - ISI proccedings)
41. A. Brezulianu, M. Fira, „E-Heart Centre – Integrated Information System of Monitoring and Management", International Symposium on Health Informatics and Bioinformatics (HIBIT 2012), 19 – 22 Aprilie 2012, Nevsehir, Turcia
42. M. Fira, L. Goras, N. Cleju, C. Barabasa „On the classification of compressed sensed signals", ISSCS 2011 (The 10-th International Symposium on Signals, Circuits and Systems), 30 Iunie – 1 Iulie 2011, Iasi, pp 503-507, ISBN: 978-1-4577-0201-3 (conferinta IEEE - ISI proccedings)
43. N. Cleju, M. Fira, C. Barabasa, L. Goras, „Robust reconstruction of compressively sensed ECG patterns", ISSCS 2011 (The 10-th International Symposium on Signals, Circuits and Systems), 30 Iunie – 1 Iulie 2011, Iasi, pp. 507-510, ISBN: 978-1-4577-0201-3 (conferinta IEEE -ISI proccedings)
44. M. Fira, L. Goras, C. Barabasa, N. Cleju, „ECG compressed sensing based on classification in compressed space and specified dictionaries", EUSIPCO 2011 (The 2011 European Signal Processing Conference), 29 august – 2 septembrie 2011, Barcelona, Spania, pp 1573-1577, ISSN: 2076-1465 (conferinta IEEE -ISI proccedings)
45. M. Fira, L. Goras, N. Cleju, C. Barabasa, "On the Possibilities of ECG Signals Compressed Sensing", 6th European Conference on Intelligent Systems and Technologies – ECIT 2010, Iasi, October 7-9, 2010, Romania, ISSN: 2069-038X
46. M. Fira, Ad. Brezulianu, L. Goras, L. Fira, "On the Compressed Sensing of ECG Signals and their Reconstruction Using Genetic Algorithms", 6th European Conference on Intelligent Systems and Technologies – ECIT 2010, Iasi, October 7-9, 2010, Romania, ISSN: 2069-038X
47. M. Fira, L. Goras , "Basis Pursuit for ECG Compression", International Symposium on Signal, Circuits and Systems, ISSCS 2009, Iasi, Romania, pp. 25 -28, ISBN 978-1-4244-3784-9, 9–10 July 2009; (conferinta IEEE -ISI proccedings)
48. M. Fira, L. Goras , "Biomedical Signal Compression based on Basis Pursuit", International Conference on Convergence and Hybrid Information Technology, ICHIT 2009, in Daejeon, Coreea de Sud; pag. 541-545, ISBN: 978-1-60558-662-5, 27 – 29 August 2009 (conferinta IEEE -ISI proccedings)
49. A. Brezulianu, M. Fira, Lucian Fira, "A genetic algorithm approach for a constrained employee scheduling problem as applied to employees at mall type shops", International Conference on Convergence and Hybrid Information Technology, ICHIT 2009, in Daejeon, Coreea de Sud; pag. 497-501, ISBN : 978-1-60558-662-5, 27 – 29 August 2009 (conferinta IEEE - ISI proccedings)
50. L. Goras, M. Fira, „Preprocessing Method for Improving ECG Signal Classification and Compression Validation", 4th International Scientific Conference on Physics and Control – PHYSCON 2009, Catania, Italia, Paper ID 262, Procceding IEEE, 1-4 Septembrie 2009
51. M. Negoita (Fira), L. Goras, "On the Validation of an ECG Signal Compression Method using NN's, 5th European Conference on Intelligent Systems and Technologies (ECIT 2008), Iasi, Romania, July 10-12, 2008
52. M. Negoita (Fira), C. Andriesei, L. Goras, "Compressed Heartbeats using Skeleton and Codebook", 5th European Symposium on Biomedical Engineering, 7th – 9th July 2006, Patras, Grecia;
53. M. Negoita (Fira), L. Goras, "Results on Original and Compressed Heartbeats Classification using a Multi-Layer Perceptron", 5th European Symposium on Biomedical Engineering, 7th – 9th July 2006, Patras, Grecia;
54. M. Negoita (Fira), Liviu Goras, "On a Compression Algorithm for ECG Signals", 13th European Signal Processing Conference – EUSIPCO 2005, Antalya, Turcia, September 4-8, 2005, ISBN 975-00 (conferinta IEEE -ISI proccedings)
55. M. Negoita (Fira), Liviu Goras, "A New Compression Algorithm for ECG Signals", EUROCON 2005- The International Conference on Computer as a tool, Belgrad, 2005 (conferinta IEEE -ISI proccedings)
56. M. Negoita (Fira), C. Corciova, F. Topoliceanu, R. Ciorap, "The analysis of isometric loading on biceps EMG dynamics using linear and nonlinear tools", Proceedings of 2nd European Conference on Inteligent Systems and Tehnologies ECIT 2002, 17-20 iulie 2002, Iasi, lucrare extenso pe CD, 10-B2-p1, 2002
57. L. Slabu, M. Negoita (Fira), I. Grosu, "Modern tool for investigation of heart rate data", 2nd European Medical & Biological Engineering Conference (EMBEC'02), Vienna (Austria) 04-08 December 2002, pp. 1284-1285, 2002; (conferinta IEEE - ISI proccedings)

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58. M. Negoita (Fira), L. Slabu, F. Topoliceanu, R. Ciorap, "Use of recurrence quantification analysis în the analysis of EMG signal", 2nd European Medical & Biological Engineering Conference (EMBEC'02), Vienna (Austria) 04-08 December 2002, pp. 542-543, 2002 (conferinta IEEE -ISI proccedings)
59. M. Negoita (Fira), L. Slabu, F. Grosu, L. Lerescu, "Nonlinear Dynamics of Cardiac Rhythm and of Human Gait", International Medical Summit For Medical Students and Young Doctors, 26-28 Octombrie 2001, Zagreb, Croatia, pag 36-40, 2001;
60. L. Slabu, M. Negoita (Fira), A. Sandu, C. Cosduneanu, L, Amariei, I. Grosu, "Investigations of Cardiac Rhythm Fluctuation Using the DFA Method", CD proceedings of the 23rd Annual International Conference of the IEEE Engineering în Medicine and Biology Society, 25-28 Octombrie 2001, Istambul (conferinta IEEE -ISI proccedings)

Research grants:

PNCDI II - RU - TE - "MEDICAL SIGNAL PROCESSING METHODS BASED ON COMPRESSED SENSING; APPLICATIONS AND THEIR IMPLEMENTATION", **director of grant**, 2015 - 2017
PNCDI II - RU - PostDoc - "POSIBILITIES OF BIOMEDICAL SIGNAL PROCESSING BASED ON SPECIFIC DICTIONARIES", **director of grant**, 2010 - 2012
PNCDI II - IDEI - " Algorithms and parallel architectures for acquisition, compression and processing of signals", member in research team, 2009 - 2012
PNCDI II - Bilateral - " Automatic analysis of ECG signal for telemedicine applications", member in research team, 2009
PNCDI II - Parteneriate - "BCISIS - Investigation system, support and control of neurological disorders based on brain-computer interface", member in research team, 2008 - 2011
CNCSIS, A – 226 "Research on using cellular neural networks in applications of Linear and Non-linear signals processing", member in research team, 2007 - 2008
CNCSIS TD-73-2005 "Contributions to the Biomedical Signals Processing", **director of grant**, 2005 - 2006
CNCSIS A- 513 -2004/ A- 513 -2005 "Image processing using cellular neural networks with applications in extraction features and pattern recognition", member in research team, 2004 - 2005
CNCSIS - 84 - BD "Contributions to the Biomedical Signals Processing", **director of grant**, 2003 - 2006
PNCD CERES 29-2002 "Multidisciplinary research in information technologies based on genetic algorithms, neural networks and fuzzy systems for engineering and management", member in research team, 2002 - 2004
ANSTI-B-B1 6171- 2 000/2001 "Research on optimizing the performance / cost ratio for laparoscopic surgery", **director of grant**, 2000 - 2001
CNCSIS-A-460-1998 "Research on cinematic and dynamic human walking with applications in Physical Therapy", member in research team, 1998 - 2000

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