LISTA DE LUCRĂRI ȘTIINȚIFICE

Domeniul: Electronică, Telecomunicații și Tehnologia Informației (comisia 11)

CS II - FIRA CATALINA MONICA

CĂRȚI ȘI CAPITOLE ÎN CĂRȚI DE SPECIALITATE

Edituri internationale

1. 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

Edituri nationale

1. **M. Fira**, L. Goras, *Achiziția comprimată cu aplicații în domeniul semnalelor biomedicale*, Editura PIM, 2023, ISBN:978-606-13-7454-0

2. **M. Fira**, *Achiziția comprimată a semnalelor rarefiate – Teorie și implementări practice*, Editura PIM, 2023, ISBN:978-606-13-7453-3

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

4. A. M. Lazar, L. Davea, **M. Fira**, A. Maiorescu, B. Teodorescu, R. Urseleanu, "*Interfata creier - calculator; Implementarea paradigmelor*", Ed. Cermi, 2009, ISBN: 978-973-667-384-9

ARTICOLE ÎN REVISTE COTATE WOS ȘI ÎN VOLUMELE UNOR MANIFESTĂRI ȘTIINȚIFICE INDEXATE ISI PROCEEDINGS - WOS

1. **M. Fira**, H-N. Costin, L. Goras, *A Study on Dictionary Selection in Compressive Sensing for ECG Signals Compression and Classification*, BIOSENSORS-BASEL, Volume12, Issue3, Article Number 146, https://doi.org/10.3390/bios12030146 , 2022, eISSN 2079-6374, WOS:000776067500001 **(Impact factor 2021 = 5.74 zona Q1)**

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, eISSN 2079-6374, **WOS:000653578000001 (Impact factor 2021 = 5.74 zona Q1)**

3. **M. 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, ISSN 0018-9294, **WOS:000254219900006** **(Impact factor 2021 = 4.75 zona Q2)**

4. **M. Fira**, L. Goras, *A New Method for EEG Compressive Sensing*, Advances in Electrical and Computer Engineering, vol. 12, no. 4, pp. 71-76, 2012, ISSN 1582-7445, **WOS:000312128400011** **(Impact factor 2021 = 0.83 zona Q4)**

5. **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, WOS:000284782700004 **(Impact factor 2021 = 0.83 zona Q4)**

6. **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, ISBN 978-1-7281-8803-4, **WOS:000646194100117**

7. **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 **(ISI – zona Q4, Journal Citation Indicator = 0.17)**, ISSN 2158-107X, **WOS:000524029200006**

8. **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 **(ISI – zona Q4, Journal Citation Indicator = 0.17)**, ISSN 2158-107X, **WOS: 000499999000043**

9. **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, ISBN 978-1-7281-3896-1, **WOS:000503459500079**

10. **M. Fira**, L. 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, ISBN 978-1-4673-8197-0, **WOS:000383221900088**

11. **M. Fira,** Liviu Goras, Victor-Andrei Maiorescu and Mihaela Catalina Luca, Compressed Sensing and Classification 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, **WOS:000393155300019**

12. **M. Fira**, A. 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, ISSN 0922-6389, **WOS:000383373300017**

13. **M. Fira**, L. 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, **WOS:000380451600004**, ISBN 978-1-4673-7488-0

14. **M. Fira**, *Applications of Compressed Sensing: Compression and Encryption*, International Conference on e-Health and Bioengineering, EHB 2015, 19-21 Noiembrie, Iasi, Romania, **WOS: 000380397900158**, ISBN 978-1-4673-7545-0

15. **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, **WOS:000380554900026**, ISBN 978-1-4799-5888-7

16. **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, **WOS:000380554900002**, ISBN 978-1-4799-5888-7

17. 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, **WOS:000380554900025**, ISBN 978-1-4799-5888-7

18. **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, **WOS:000337926700079**, ISBN 978-1-4673-6141-5

19. **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, **WOS:000312658700068**

20. **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, **WOS:000377963100319**, ISSN 2076-1465

21. **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, **WOS:000310258400062**, ISBN 978-3-642-24105-5

22. **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, **WOS:000337925400125**, ISBN 978-1-4577-0201-3

23. **M. Fira**, L. Goras, *Basis Pursuit for ECG Compression*, International Symposium on Signal, Circuits and Systems, ISSCS 2009, Iasi, Romania, pp. 25 -28, , 9–10 July 2009, **WOS:000275854200006,** ISBN 978-1-4244-3784-9

24. **M. Negoita (cas. Fira)**, Liviu Goras, *A New Compression Algorithm for ECG Signals*, EUROCON 2005- The International Conference on Computer as a tool, Belgrad, 2005, **WOS:000237248900103**, ISBN 1-4244-0049-X

25. L. Slabu, **M. Negoita (cas. 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, **WOS:000178871900154**, ISBN 0-7803-7211-5

ARTICOLE ÎN REVISTE ŞI VOLUMELE UNOR MANIFESTĂRI ŞTIINŢIFICE INDEXATE IN ALTE BAZE DE DATE INTERNATIONALE (BDI)

1. **M. Fira**, L. Goras, *On the influence of feature selection with Laplacian Score in ECG signals classification*, International Symposium on Signals, Circuits and Systems (ISSCS), 2021,Iasi, Romania

2. **M. Fira**, L. Goras, *Improving multiclass classification accuracy for ECG signals belonging to imbalanced databases*, International Symposium on Signals, Circuits and Systems (ISSCS), 2021,Iasi, Romania

3. L. Goras, P. Ungureanu, **M. Fira**, *On Pattern Formation in a Class of Graph Neural Networks*, International Symposium on Signals, Circuits and Systems (ISSCS), 2021,Iasi, Romania

4. **M. Fira**, L. Goras, *An Efficient Classifier for P300 in Brain–Computer Interface Based on Scalar Products*, ISMAC 2018: Proceedings of the International Conference on ISMAC in Computational Vision and Bio-Engineering 2018 (ISMAC-CVB) pp 235-242, Lecture Notes in Computational Vision and Biomechanics book series (LNCVB, volume 30)

5. **M. Fira**, L. Goras, A, Lazar, *On P300 Detection using Scalar Products*, International Journal of Advanced Computer Science and Applications (IJACSA), Volume 9, Issue 1, Page 99-104, 2018 ISSN 2158-107X,

6. **M. 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, ISSN 2158-107X,

7. **M. Fira**, L. 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 ISSN2158-107X,

8. A. Brezulianu, **M. Fira**, M. D. 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. O.-D. Eva, A. M. Lazăr, **M. 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. 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

11. 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

12. 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,

13. 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

14. **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

15. 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

16. **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

17. 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

18. 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

19. **M. Negoita (cas. 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

ARTICOLE ÎN VOLUMELE UNOR MANIFESTĂRI ȘTIINȚIFICE INTERNAȚIONALE (NEINDEXATE BDI)

1. **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

2. **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

3. **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

4. 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

5. **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

6. **M. Fira**, A. 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

7. **M. Negoita (cas. 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

8. **M. Negoita (cas. Fira),** C. Andriesei, L. Goras, *Compressed Heartbeats using Skeleton and Codebook*, 5th European Symposium on Biomedical Engineering, 7th – 9th July 2006, Patras, Grecia;

9. **M. Negoita (cas. 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;

10. **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 extensor pe CD, 10-B2-p1, 2002

11. L. Slabu, **M. Negoita (cas. 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;

12. **M. Negoita (cas. 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

13. **M. Negoita (cas. 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;

GRANTURI/PROIECTE DE CERCETARE CÂŞTIGATE PRIN COMPETIŢIE

IN CALITATE DE DIRECTOR/RESPONSABIL/APLICANT GRANT NAŢIONAL

1. PNCDI II - RU – **TinereEchipe** 2014 - 4 - 0832- "*Metode de prelucrare a semnalelor medicale bazate pe achizitia comprimata; aplicatii si imlementarea acestora*", director de grant, 2015 - 2017

2. PN II – RU – **PostDoc** cod 347 – "*Posibilitati de procesare a semnalelor medicale bazate pe dictionare specifice*", director de grant, 2010 – 2012

3. CNCSIS TD (**Tineri Doctoranzi**) – tema 73 si 98 /124 - 2005/2006 "*Metode noi de compresie a semnalelor electrocardiografice cu aplicatii in telemedicina*", director de grant, 2005 – 2006

4. CNCSIS - 84 – BD (**Bursa Doctorala**) "*Contribuţii la prelucrarea semnalelor biomedicale*", aplicant grant, 2003 – 2006

5. **ANSTI-B-B1** 6171- 2 000/2001 "*Cercetare privind optimizarea raportului performanță/cost pentru chirurgia laparoscopică*", director de grant, 2000

MEMBRU ÎN ECHIPĂ GRANT NATIONAL

1. CNCSIS 12115/01.01.2008 **PARTENERIATE** - "*BCISIS -Sistem de investigatie, asistare si control al afectiunilor neurologice bazat pe interfata creier - calculator*", membru in echipa de implementare, Director de grant Anca Lazar , perioada 2008 – 2011

2. PN II **IDEI** nr. 648/2009 - UEFISCDI - "*Algoritmi si arhitecturi paralele pentru achizitia, compresia si prelucrarea semnalelor*", Director de grant Liviu Goras, perioada 2009 – 2012

3. PNCDI II **- Cooperare Bilaterala** - Capacitati - Modul III ANCS - "*Analiza automata a semnalelor ECG pentru aplicatii de telemedicina*", membru in echipa de implementare, Director de proiect Adrian Brezulianu, 2009

4. PN II **IDEI** nr. 626/2009 – UEFISCDI,"*Sistem robotic inteligent cu autoorganizare si bio-inspirat*", membru in echipa de implementare, Director de proiect Dan Marius Dobrea, Perioada 2010 - 2011

5. Act ad. **GR** 33/2007, tema 11, cod CNCSIS 226 - "*Cercetări privind utilizarea rețelelor neuronale celulare în aplicații de prelucrare liniară și neliniară a semnalelor*",membru in echipa de implementare, Director de grant Liviu Goras, perioada 2007

6. Act ad. **GR** 164/2006, tema 38, cod CNCSIS 513 - "*Prelucrarea imaginilor folosind rețele neuronale celulare cu aplicații în extragerea de trăsături și recunoașterea formelor*", membru in echipa de implementare, Director de grant Liviu Goras, perioada 2006