Lista de lucrări în domeniul de ştiinţă definit de disciplinele din postul scos la concurs

NUMELE ŞI PRENUMELE: SZILÁGYI, LÁSZLÓ

I. LISTA PUBLICAŢIILOR RELEVANTE

1. **Szilágyi L**, Szilágyi SM: Generalized suppression rules for the suppressed fuzzy c-means algorithm. Neurocomputing 139:298–309 (2014), ISSN: 0925-2312, IF: 2.005*
2. Szilágyi SM, **Szilágyi L**: A fast hierarchical clustering algorithm for large-scale protein sequence data sets. Computers in Biology and Medicine 48:94–101 (2014), ISSN 0010-4825, IF: 1.475*
3. **Szilágyi L**: Lessons to learn from a mistaken optimization. Pattern Recognition Letters, 36(1):29–35 (2014), ISSN: 0167-6855, IF: 1.062*
4. **Szilágyi L**: Robust spherical shell clustering using fuzzy-possibilistic product partition. International Journal of Intelligent Systems, 28(6):524-539 (2013), ISSN: 1098-111X, IF: 1.411
5. **Szilágyi L**, Szilágyi SM, Benyó B: Efficient inhomogeneity compensation using fuzzy c-means clustering models. Computer Methods and Programs in Biomedicine, 108(1):80-89 (2012), ISSN: 0169-2607, IF: 1.555
6. **Szilágyi L**, Szilágyi SM, Benyó B, Benyó Z: Intensity inhomogeneity compensation and segmentation of MR brain images using hybrid c-means clustering models. Biomedical Signal Processing and Control, 6(1):3-12 (2011), ISSN: 1746-8094, IF: 1.000
7. **Szilágyi L**, Medvés L, Szilágyi SM: A modified Markov clustering approach to unsupervised classification of protein sequences. Neurocomputing, 73(13-15):2332-2345 (2010), ISSN: 0925-2312, IF: 1.429
8. **Szilágyi L**, Szilágyi SM, Benyó Z: Analytical and numerical evaluation of the suppressed fuzzy c-means algorithm: a study on the competition in c-means clustering models. Soft Computing, 14(5):495-505, ISSN: 1432-7643, IF: 1.512
9. **Szilágyi L**, Benyó Z: Development of a virtual reality guided diagnostic tool based on magnetic resonance imaging. Acta Physiologica Hungarica 97(3):267-280 (2010), ISSN: 0231-424X, IF: 1.226
10. Szilágyi SM, **Szilágyi L**, Iclănzan D, Dávid L, Frigy A, Benyó Z: Intensity inhomogeneity correction and segmentation of magnetic resonance images using a multi-stage fuzzy clustering approach. Neural Network World 19:513-528 (2009), ISSN: 1210-0552, IF: 0.475

II. LISTA COMPLETĂ DE PUBLICAŢII, CREAŢII, INVENŢII

A. Teza de doctorat.

Titlul: Novel image processing methods based on fuzzy logic

Conducătorul tezei: Prof. Dr. habil Benyó Zoltán

Instituţia: Universitatea Tehnică şi Economică din Budapesta (Ungaria), Facultatea de Inginerie Electrică şi Informatică

Calificativul obţinut: cum laude

Anul susținerii: 2009
Publicat: Scientia Publishing House, Cluj-Napoca, 2009, ISBN: 978-973-1970-20-2, 162pp

B. Cărti publicate

B1. Cărţi (manuale, monografii, tratate, îndrumare etc.) publicate la edituri recunoscute în străinătate.

B1–1. Benyó B, Benyó Z, Paláncz B, **Szilágyi L**, Ferenci T: Theory of technical and biological systems (Hungarian). Typotex, Budapest, 2014, ISBN 978-963-2791-74-6, 189pp

B2. Cărţi (manuale, monografii, tratate, îndrumare etc.) publicate în ţară, la edituri recunoscute CNCSIS.

B2–1. Benyó Z, Paláncz B, **Szilágyi L**: Insight into Computer Science with Maple. Scientia Publishing House, Cluj-Napoca, 2005, ISBN: 973-7953-56-8, 416pp

B3. Cărţi (manuale, monografii, tratate, îndrumare etc.) publicate la alte edituri sau pe plan local.

B4. Cărţi (manuale, monografii, tratate, îndrumare etc.) publicate pe web.

B5. Capitole de cărţi publicate în străinătate

B5–1. Szilágyi SM, **Szilágyi L**, Benyó Z: Volumetric analysis of the heart using echocardiography. In: Sachse FB, Seemann G (Eds.): Functional Imaging and Modeling of the Heart, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 4466, pp. 81-90 (2007), ISBN: 978-3-540-72906-8.

B5–2. **Szilágyi L**, Szilágyi SM, Benyó Z: A modified fuzzy c-means algorithm for MR brain image segmentation. In: Kamel MS, Campilho AC (Eds.): Image Analysis and Recognition, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 4633, pp. 866-877 (2007), ISBN: 978-3-540-74258-6.

B5–3. Szilágyi SM, **Szilágyi L**, Benyó Z: Spatial visualization of the heart in case of ectopic beats and fibrillation. In: Mery D, Rueda L (Eds.): Advances in Image and Video Technology, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 4872, pp. 548-561 (2007), ISBN: 978-3-540-77128-9.

B5–4. Medvés L, **Szilágyi L**, Szilágyi SM: A modified Markov clustering approach for protein sequence clustering. In: Chetty M, Ngom A, Ahmad S (Eds.): Pattern Recognition in Bioinformatics, Springer International Publishing Switzerland, Lecture Notes in Bioinformatics vol. 5265, pp. 110-120 (2008), ISBN: 978-3-540-88434-7.

B5–5. **Szilágyi L**, Szilágyi SM, Benyó Z: Analytical and numerical evaluation of the suppressed fuzzy c-means algorithm. In: Torra V, Narukawa Y (Eds.): Modeling Decisions for Artificial Intelligence, Springer International Publishing Switzerland, Lecture Notes in Artificial Intelligence vol. 5285, pp. 146-157 (2008), ISBN: 978-3-540-88268-8.

B5–6. Szilágyi SM, **Szilágyi L**, Benyó Z: Echocardiographic image sequence compression based on spatial active appearance model. In: Wickramasinghe N, Geisler E (eds.): Encyclopaedia of Healthcare Information Systems, IDEA Group Publishing: Hershey-New York, pp. 472-479, ISBN: 978-1599048895 (2008).

B5–7. **Szilágyi L**, Szilágyi SM, Benyó Z: Fast and robust fuzzy c-means algorithms for automated brain MR image segmentation. In: Wickramasinghe N, Geisler E (eds.): Encyclopaedia of Healthcare Information Systems, IDEA Group Publishing: Hershey-New York, pp. 578-586, ISBN: 978-1599048895 (2008).

B5–8. Szilágyi SM, **Szilágyi L**, Luca CT, Cozma D, Ivanica G, Benyó Z: Modification of the accessory pathway localization method to improve the performance of WPW syndrome interventions. In: Wickramasinghe N, Geisler E (eds.): Encyclopaedia of Healthcare Information Systems, IDEA Group Publishing: Hershey-New York, pp. 921-930, ISBN: 978-1599048895 (2008).

B5–9. Szilágyi SM, **Szilágyi L**, Frigy A, Görög LK, Benyó Z: Spatial heart simulation and adaptive wave propagation. In: Wickramasinghe N, Geisler E (eds.): Encyclopaedia of Healthcare Information Systems, IDEA Group Publishing: Hershey-New York, pp. 1253-1260, ISBN: 978-1599048895, (2008).

B5–10. Szilágyi SM, **Szilágyi L**, Benyó Z: Spatial heart simulation and analysis using unified neural network. In: Wickramasinghe N, Geisler E (eds.): Encyclopaedia of Healthcare Information Systems, IDEA Group Publishing: Hershey-New York, pp. 1261-1268, ISBN: 978-1599048895 (2008).

B5–11. Szilágyi SM, **Szilágyi L**, Benyó Z: Volumetric analysis and modeling of the heart using active appearance model. In: Wickramasinghe N, Geisler E (eds.): Encyclopaedia of Healthcare Information Systems, IDEA Group Publishing: Hershey-New York, pp. 1374-1382, ISBN: 978-1599048895 (2008).

B5–12. **Szilágyi L**, Szilágyi SM, Kiss Cs: A generalized approach to the suppressed fuzzy c-means algorithm. In: Torra V, Narukawa Y, Dumas M (Eds.): Modeling Decisions for Artificial Intelligence, Springer International Publishing Switzerland, Lecture Notes in Artificial Intelligence vol. 6408, pp. 140-151 (2010), ISBN: 978-3-642-16291-6.

B5–13. **Szilágyi L**: Fuzzy-Possibilistic Fuzzy Partition: a novel robust approach to c-means clustering. In: Torra V, Narukawa Y, Yin JP, Long J (Eds.): Modeling Decisions for Artificial Intelligence, Springer International Publishing Switzerland, Lecture Notes in Artificial Intelligence vol. 6820, pp. 150-161 (2011), ISBN: 978-3-642-22588-8.

B5–14. **Szilágyi L**, Szilágyi SM: Fast implementations of Markov clustering for protein sequence grouping. In: Torra V, Narukawa Y, Navarro-Arribas G, Megías D (Eds.): Modeling Decisions for Artificial Intelligence, Springer International Publishing Switzerland, Lecture Notes in Artificial Intelligence vol. 8234, pp. 214-225 (2013), ISBN: 978-3-642-41549-4.

B5–15. **Szilágyi L**, Varga ZsR, Szilágyi SM: Application of the fuzzy-possibilistic product partition in elliptic shell clustering. In: Torra V, Narukawa Y, Endo Y (Eds.): Modeling Decisions for Artificial Intelligence, Springer International Publishing Switzerland, Lecture Notes in Artificial Intelligence vol. 8825, pp. 158-169 (2014), ISBN: 978-3-319-12053-9

B6. Capitole de cărţi publicate în ţară

C. Lucrări ştiinţifice publicate

C1. Lucrări ştiinţifice publicate în reviste cotate ISI

C1–1. Szilágyi M, **Szilágyi L**: Opinions on the mathematical activity of János Bolyai. Acta Physica Hungarica N.S. Heavy Ion Physics 11:99-108 (2000), ISSN: 1219-7580, IF: 0.270

C1–2. Szilágyi SM, **Szilágyi L**, Iclănzan D, Dávid L, Frigy A, Benyó Z: Intensity inhomogeneity correction and segmentation of magnetic resonance images using a multi-stage fuzzy clustering approach. Neural Network World 19:513-528 (2009), ISSN: 1210-0552, IF: 0.475

C1–3. **Szilágyi L**, Medvés L, Szilágyi SM: A modified Markov clustering approach to unsupervised classification of protein sequences. Neurocomputing, 73(13-15):2332-2345 (2010), ISSN: 0925-2312, IF: 1.429

C1–4. **Szilágyi L**, Szilágyi SM, Benyó Z: Analytical and numerical evaluation of the suppressed fuzzy c-means algorithm: a study on the competition in c-means clustering models. Soft Computing, 14(5):495-505, ISSN: 1432-7643, IF: 1.512

C1–5. **Szilágyi L**, Benyó Z: Development of a virtual reality guided diagnostic tool based on magnetic resonance imaging. Acta Physiologica Hungarica 97(3):267-280 (2010), ISSN: 0231-424X, IF: 1.226

C1–6. Szilágyi SM, **Szilágyi L**, Benyó Z: A patient specific electro-mechanical model of the heart. Computer Methods and Programs in Biomedicine, 101(2):183-200 (2011), ISSN: 0169-2607, IF: 1.516

C1–7. **Szilágyi L**, Szilágyi SM, Benyó B, Benyó Z: Intensity inhomogeneity compensation and segmentation of MR brain images using hybrid c-means clustering models. Biomedical Signal Processing and Control, 6(1):3-12 (2011), ISSN: 1746-8094, IF: 1.000

C1–8. Szilágyi SM, **Szilágyi L**, Görög LK, Luca CT, Cozma D, Ivanica G, Benyó Z: An enhanced method for accessory pathway localization in case of Wolff-Parkinson-White syndrome. Acta Physiologica Hungarica 98(3):347-358 (2011), ISSN: 0231-424X, IF: 0.821

C1–9. **Szilágyi L**, Szilágyi SM, Benyó B: Efficient inhomogeneity compensation using fuzzy c-means clustering models. Computer Methods and Programs in Biomedicine, 108(1):80-89 (2012), ISSN: 0169-2607, IF: 1.555

C1–10. **Szilágyi L**, Haidegger T, Lehotsky Á, Nagy M, Csonka EA, Sun XY, Ooi KL, Fisher D: A large-scale assessment of hand hygiene quality and the effectiveness of the "WHO 6-steps". BMC Infectious Diseases, 13(249):1-10 (2013), ISSN: 1471-2334, IF: 2.561

C1–11. **Szilágyi L**: Robust spherical shell clustering using fuzzy-possibilistic product partition. International Journal of Intelligent Systems, 28(6):524-539 (2013), ISSN: 1098-111X, IF: 1.411

C1–12. **Szilágyi L**, Szilágyi SM: Generalized suppression rules for the suppressed fuzzy c-means algorithm. Neurocomputing 139:298–309 (2014), ISSN: 0925-2312, IF: 2.005*

C1–13. Szilágyi SM, **Szilágyi L**: A fast hierarchical clustering algorithm for large-scale protein sequence data sets. Computers in Biology and Medicine 48:94–101 (2014), ISSN 0010-4825, IF: 1.475*

C1–14. **Szilágyi L**: Lessons to learn from a mistaken optimization. Pattern Recognition Letters, 36(1):29–35 (2014), ISSN: 0167-6855, IF: 1.062*

C1–15. Magdás A, **Szilágyi L**, Belényi B, Incze A: Ambulatory monitoring derived blood pressure variability and cardiovascular risk factors in elderly hypertensive patients. Bio-Medical Materials and Engineering 24(6):2563–2569 (2014), ISSN 0959-2989, IF: 0.847*

C2. Lucrări ştiinţifice publicate în reviste indexate în baze de date internaţionale (indicaţi şi baza de date).

C2–1. **Szilágyi L**: Medical Image Processing Methods for the Development of a Virtual Endoscope. Periodica Polytechnica Ser. Electrical Engineering 50(1-2):69–78 (2006), ISSN 0324-6000. (Scopus)

C3. Lucrări ştiinţifice publicate în reviste din străinătate (altele decât cele menţionate anterior).

C3–1. Benyó Z, Benyó B, Szilágyi SM, Várady P, **Szilágyi L**: Research Activity of the Biomedical Engineering Laboratory at TU Budapest. Research News, 8–13 (1999).

C3–2. **Szilágyi L**: EEG jelek kiértékelése, epilepsziás jelalakok lokalizálása wavelet transzformáció és neurális hálózatok alkalmazásával. ORKI Orvos- és Kórháztechnika 41(1):12–13 (2003), ISSN: 1585-7360.

C3–3. Szilágyi SM, Frigy A, Görög LK, **Szilágyi L**, Benyó Z: A pitvar-kamrai járulékos nyalábok Arruda-féle lokalizációs módszerének érzékenységi analízise. ORKI Orvos- és Kórháztechnika 42(6):164–167 (2004), ISSN: 1585-7360.

C3–4. Kovács L, Benyó B, Török L, Reiss A, **Szilágyi L**, Fördős G: Járművezetők élettani jeleinek mérése, tárolása és továbbítása. A Jövő Járműve, 06(1-2):65–66 (2006).

C3–5. **Szilágyi L**, Szilágyi SM: An efficient Markov clustering approach to protein sequence grouping. Journal of Pattern Recognition & Image Processing (JPRIP) 4(1):40-49 (2013), ISSN: 2160-9454

C4. Lucrări ştiinţifice publicate în reviste din ţară, recunoscute CNCSIS (altele decât cele din baze de date internaţionale).

C4–1. **Szilágyi L**: Virtual brain endoscopy based on magnetic resonance images. Scientific Bulletin of the "Politehnica" University of Timişoara, Transactions on Automatic Control and Computer Science 49(63):47–50 (2004), ISSN: 1224-600X.

C4–2. Szilágyi SM, **Szilágyi L**, Benyó Z: Unified neural network based adaptive ECG signal analysis and compression. Scientific Bulletin of the "Politehnica" University of Timişoara, Transactions on Automatic Control and Computer Science 51(65):27–36 (2006), ISSN 1224-600X.

C5. Lucrări ştiinţifice publicate în reviste, altele decât cele menţionate anterior

C6. Lucrări ştiinţifice publicate în volumele manifestărilor ştiinţifice

C6–1. Szilágyi SM, Moldován IZ, **Szilágyi L**: New possibilities in the medical sciences in the field of ECG signal processing (Hungarian). 1st Scienctific Symposium of Young Engineers (FMTÜ, Cluj-Napoca), pp. 1-4, 1996, ISBN 973-98092-2-7

C6–2. Szilágyi SM, **Szilágyi L**, Dávid L: ECG signal compression using adaptive prediction. 19th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Chicago 101–104 (1997).

C6–3. Szilágyi SM, **Szilágyi L**, Dávid L: Comparison between neural-network-based adaptive filtering and wavelet transform for ECG characteristic points detection. 19th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Chicago 272–274 (1997).

C6–4. **Szilágyi L**, Szilágyi SM: ECG signal compression using genetic algorithm (Hungarian). 2nd Scienctific Symposium of Young Engineers (FMTÜ, Cluj-Napoca), pp. 149-152, 1997, ISBN 973-98092-2-7

C6–5. Szilágyi SM, **Szilágyi L**: Adaptive estimator for ECG signal compression. Conference on the Latest Results in Information Technology, Budapest, pp. 50-53, 1997, ISBN 963-421-545-9

C6–6. **Szilágyi L**: Application of the Kalman filter in cardiac arrhythmia detection. 20th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Hong Kong 98–100 (1998), ISBN: 0-7803-5167-3.

C6–7. **Szilágyi L**: Cardiac arrhythmia detection using the Kalman filter. 21st Neumann János Colloquium and Exhibition (Veszprém, Hungary), pp. 59-61, 1998

C6–8. **Szilágyi L**, Szilágyi SM: Application of parameter estimation techniques in the detection of cardiac arrhythmias (Hungarian). 3rd Scienctific Symposium of Young Engineers (FMTÜ, Cluj-Napoca), pp. 61-64, 1998, ISBN 973-980925-1

C6–9. **Szilágyi L**: Neural network based QRS complex and arrhythmia detection in on-line Holter systems. Conference on the Latest Results in Information Technology, Budapest, pp. 66-72, 1998, ISBN 963-421-548-3

C6–10. Szilágyi SM, **Szilágyi L**: Artifact separation and classification from ECG recordings. Conference on the Latest Results in Information Technology, Budapest, pp. 85-90, 1998, ISBN 963-421-548-3

C6–11. **Szilágyi L**: Wavelet-transform-based QRS complex detection in on-line Holter systems. 21st Annual International Conference of IEEE Engineering in Medicine and Biology Society, Atlanta 271 (1999), ISBN: 0-7803-5674-8.

C6–12. Szilágyi SM, **Szilágyi L**: Wavelet transform and neural-network-based adaptive filtering for QRS detection. 22nd Annual International Conference of IEEE Engineering in Medicine and Biology Society, Chicago 1267–1270 (2000), ISBN: 0-7803-6465-1.

C6–13. Várady P, Nagy L, **Szilágyi L**: On-line detection of sleep apnea during critical care monitoring. 22nd Annual International Conference of IEEE

Engineering in Medicine and Biology Society, Chicago 1299–1301 (2000), ISBN: 0-7803-6465-1.

C6–14. **Szilágyi L**, Benyó Z, Szilágyi SM, Szlávecz Á, Nagy L: On-line QRS complex detection using wavelet filtering. 23rd Annual International Conference of IEEE Engineering in Medicine and Biology Society, Istanbul 1872–1874 (2001), ISBN: 0-7803-7211-5.

C6–15. Szilágyi SM, **Szilágyi L**: Efficient ECG signal compression using adaptive heart model. 23rd Annual International Conference of IEEE Engineering in Medicine and Biology Society, Istanbul 2125–2128 (2001), ISBN: 0-7803-7211-5.

C6–16. Nagy L, **Szilágyi L**: Catheter calibration using template matching line interpolation algorithm. 23rd Annual International Conference of IEEE Engineering in Medicine and Biology Society, Istanbul 387–389 (2001), ISBN: 0-7803-7211-5.

C6–17. **Szilágyi L**, Benyó Z, Szilágyi SM: A new method for epileptic waveform recognition using wavelet decomposition and artificial neural networks. 24th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Houston 2025–2026 (2002), ISBN 0-7803-7612-9.

C6–18. Szilágyi SM, Benyó Z, **Szilágyi L**: Comparison of malfunction diagnosis sensibility for direct and inverse ECG signal processing methods. 24th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Houston 244–245 (2002), ISBN 0-7803-7612-9.

C6–19. **Szilágyi L**, Benyó Z, Szilágyi SM, Adam HS: MR brain image segmentation using an enhanced fuzzy c-means algorithm. 25th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Cancún (Mexico) 724–726 (2003), ISBN: 0-7803-7789-3.

C6–20. **Szilágyi L**, Benyó Z: Magnetic resonance brain image segmentation using an enhanced fuzzy c-means algorithm. World Congress on Medical Physics and Biomedical Engineering (WC2003), Sydney. IFMBE Proceedings 4(4406):1-5 (2003), ISBN: 1-8770-4014-2.

C6–21. Szilágyi SM, Benyó Z, Dávid L, **Szilágyi L**: Adaptive wavelet-transform-based ECG waveforms detection. 25th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Cancún (Mexico) 2412–2415 (2003), ISBN: 0-7803-7789-3.

C6–22. Benyó B, Benyó Z, Paláncz B, Kovács L, **Szilágyi L**: A fully symbolic design and modelling of nonlinear glucose control with Control System Professional Suite (CSPS) of Mathematica. World Congress on Medical Physics and Biomedical Engineering (WC2003), Sydney. IFMBE Proceedings 4(2813):1-4 (2003), ISBN: 1-8770-4014-2.

C6–23. **Szilágyi L**, Benyó Z: Epileptic waveform recognition using wavelet decomposition and artificial neural networks. 5th IFAC Symposium on Modelling and Control in Biomedical Systems (MCBMS'03) Melbourne. In: Feng DD, Carson ER: Modelling and Control in Biomedical Systems, Elsevier IFAC Publications, Oxford UK, 301–303 (2003), ISBN: 0-0804-4159-9.

C6–24. **Szilágyi L**, Benyó Z, Szilágyi SM: Brain image segmentation for virtual endoscopy. 26th Annual International Conference of IEEE Engineering in

Medicine and Biology Society, San Francisco 1730–1732 (2004), ISBN: 0-7803-8439-3.

C6–25. **Szilágyi L**, Szilágyi SM, Benyó Z: Medical image segmentation for virtual endoscopy. 16th IFAC World Congress, Prague 243–247 (2005).

C6–26. Szilágyi SM, **Szilágyi L**, Benyó Z: Recognition of various events from 3-D heart model. 16th IFAC World Congress, Prague 107–112 (2005).

C6–27. Szilágyi SM, **Szilágyi L**, Benyó Z: Risk estimation techniques in case of WPW syndrome. 16th IFAC World Congress, Prague 184–189 (2005).

C6–28. Szilágyi SM, **Szilágyi L**, Frigy A, Görög LK, László SE, Benyó Z: 3D heart simulation and recognition of various events. 27th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Shanghai 4038–4041 (2005), ISBN 0-7803-8741-4.

C6–29. **Szilágyi L**, Szilágyi SM, Frigy A, László SE, Görög LK, Benyó Z: Quick QRS complex detection for on-line ECG and Holter systems. 27th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Shanghai 3906–3908 (2005), ISBN 0-7803-8741-4.

C6–30. **Szilágyi L**, Benyó B, Szilágyi SM, Benyó Z: Medical image segmentation techniques for virtual endoscopy. 6th IFAC Symposium on Modelling and Control in Biomedical Systems (MCBMS'06) Reims (France). In: Feng DD, Dubios O, Zaytoon J, Carson ER: Modelling and Control in Biomedical Systems, Elsevier IFAC Publications, Oxford UK, 243–248 (2006) ISBN 0-0804-4530-6.

C6–31. **Szilágyi L**, Szilágyi SM, Fördős G, Benyó Z: Quick ECG analysis for on-line Holter monitoring systems. 28th Annual International Conference of IEEE Engineering in Medicine and Biology Society, New York 1678–1681 (2006), ISBN 1-4244-0033-3.

C6–32. Szilágyi SM, **Szilágyi L**, Benyó Z: Sensibility Analysis of the Arruda Localization Method and Modifications in Left Ventricle Analysis. 28th Annual International Conference of IEEE Engineering in Medicine and Biology Society, New York 3998–4001 (2006), ISBN 1-4244-0033-3.

C6–33. **Szilágyi L**, Szilágyi SM, Benyó Z: Automated medical image processing methods for virtual endoscopy. World Congress on Medical Physics and Biomedical Engineering (WC2006), Seoul. IFMBE Proceedings 14:2267–2270 (2007), ISSN 1727-1983.

C6–34. **Szilágyi L**, Szilágyi SM, Frigy A, Dávid L, Benyó Z: Quick ECG segmentation, artifact detection, and risk estimation methods for on-line Holter monitoring systems. World Congress on Medical Physics and Biomedical Engineering (WC2006), Seoul. IFMBE Proceedings 14:914–917 (2007), ISSN 1727-1983.

C6–35. Szilágyi SM, **Szilágyi L**, Benyó Z: Inverse 3D heart model for ECG signal simulation and analysis. World Congress on Medical Physics and Biomedical Engineering (WC2006), Seoul. IFMBE Proceedings 14:27–31 (2007), ISSN 1727-1983.

C6–36. Szilágyi SM, **Szilágyi L**, Görög LK, Máthé Zs, Benyó Z: Modifications in Arruda's localization method in left ventricle analysis. World Congress on Medical Physics and Biomedical Engineering (WC2006), Seoul. IFMBE Proceedings 14:117–120 (2007), ISSN 1727-1983.

C6–37. **Szilágyi L**, Szilágyi SM, Benyó Z: Efficient feature extraction for fast segmentation of MR brain images. Scandinavian Conference on Image Analysis

(SCIA'07, Aalborg, Denmark) LNCS 4522:611-620 (2007), ISBN: 978-3-540-73039-2.

C6–38. Szilágyi SM, **Szilágyi L**, Benyó Z: Adaptive ECG compression using support vector machine. Ibero-American Congress on Pattern Recognition and Image Analysis (CIARP'07, Valparaíso, Chile) LNCS 4756:594-603 (2007), ISBN: 978-3-540-76724-4.

C6–39. Szilágyi SM, **Szilágyi L**, Frigy A, Görög LK, Benyó Z: Unified neural network based pathologic event reconstruction using spatial heart model. Ibero-American Congress on Pattern Recognition and Image Analysis (CIARP'07, Valparaíso, Chile) LNCS 4756:851-860 (2007), ISBN: 978-3-540-76724-4

C6–40. Szilágyi SM, **Szilágyi L**, Benyó Z: Echocardiographic image sequence compression based on spatial active appearance model. Ibero-American Congress on Pattern Recognition and Image Analysis (CIARP'07, Valparaíso, Chile) LNCS 4756:841-850 (2007), ISBN: 978-3-540-76724-4

C6–41. **Szilágyi L**, Szilágyi SM, Benyó Z: A modified fuzzy c-Means classifier for fast segmentation of MR brain images. World Congress of Int'l Fuzzy Systems Association (IFSA'07, Cancún, Mexico), Advances in Soft Computing 41:119–127 (2007), ISBN: 978-3-540-72431-5.

C6–42. Szilágyi SM, **Szilágyi L**, Benyó Z: Spatial heart simulation and analysis using unified neural network. World Congress of Int'l Fuzzy Systems Association (IFSA'07, Cancún, Mexico), Advances in Soft Computing 41:346–354 (2007), ISBN: 978-3-540-72431-5.

C6–43. Szilágyi SM, **Szilágyi L**, Benyó Z: Support vector machine-based ECG compression. World Congress of Int'l Fuzzy Systems Association (IFSA'07, Cancún, Mexico), Advances in Soft Computing 41:737–745 (2007), ISBN: 978-3-540-72431-5.

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C6–85. **Szilágyi L**, Dénesi G, Szilágyi SM: Fast color reduction using approximative c-means clustering models, IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2014, Beijing), pp. 194-201, ISBN: 978-1-4799-2073-0, 2014

C6–86. **Szilágyi L**, Dénesi G, Kovács L, Szilágyi SM: Comparison of various improved-partition fuzzy c-means clustering algorithms in fast color reduction, 12th IEEE International Symposium on Intelligent Systems and Informatics (SISY 2014, Subotica), pp. 197-202, ISBN: 978-1-4799-5996-9, 2014

D. Traduceri de cărţi, capitole de cărţi, alte lucrări ştiinţifice

E. Editare, coordonare de volume

E–1. Domokos J, Bakó L, **Szilágyi L**, Forgó Z (eds): Proc. International Conference on Recent Achievements in Mechatronics, Automation, Computer Science and Robotics (MACRO 2011 Tg. Mureş), 2011, ISBN 978-973-1970-54-7, 340pp

F. Brevete de invenţii şi alte titluri de proprietate

F–1. Haidegger T, Lehotsky Á, Nagy M, Szilágyi L: Method and apparatus for hand disinfection control quality, P1000523, septembrie 2011

G. Contracte de cercetare (menţionaţi calitatea de director sau membru)

G–1. Titlul contractului: Metode avansate de segmentare si registrare a imaginilor, cu aplicatii in sisteme medicale. Beneficiar: Universitatea Sapientia, Finanțator: UEFISCDI. Valoarea totală și valoarea care revine instituției: 322000 RON. Perioada derulării: 2010/08-2012/08. Rolul: **director**. Rezultate principale: articole jurnal ISI C1-5, C1-6, C1-7, C1-8, C1-11, C1-12 (parțial), C1-15. Factor impact total: 8,865

G–2. Titlul contractului: Modern robust fuzzy c-means clustering techniques (OTKA PD103921). Beneficiar: Universitatea Tehnică și Economică Budapesta, Finanțator: OTKA Ungaria. Valoarea totală și valoarea care revine instituției: 70000 EUR. Perioada derulării: 2012/10-2015/09. Rolul: **director**. Rezultate principale: articole jurnal ISI C1-12 (parțial), C1-13, C1-14, două articole premiate de UEFISCDI

G–3. Titlul contractului: Metode de segmentare fuzzy cu aplicaţii în prelucrarea imaginilor medicale. Beneficiar: Universitatea Sapientia, Finanțator: IPC Sapientia. Valoarea totală și valoarea care revine instituției: 12000 RON. Perioada derulării: 2006/09-2007/08. Rolul: **director**. Rezultate principale: lucrări BDI.

G–4. Titlul contractului: Distributed communication system in biomedical applications. Beneficiar: Universitatea Tehnică și Economică Budapesta. Finanțat de: UE. Valoarea care revine instituției: 65000 EUR. Perioada derulării: 1997-1999. Rolul: membru de echipă (1998-99)

G–5. Titlul contractului: Medical communication system and dummy patient (FKFP 0301/1999). Beneficiar: Universitatea Tehnică și Economică Budapesta, Finanțator: OTKA Ungaria. Valoarea totală și valoarea care revine instituției: 20000 EUR. Perioada derulării: 1999-2001. Rolul: membru de echipă.

G–6. Titlul contractului: Event recognition for application in technical and non-technical diagnosis (OTKA T029830). Beneficiar: Universitatea Tehnică și Economică Budapesta, Finanțator: OTKA Ungaria. Valoarea totală și valoarea care revine instituției: 31000 EUR. Perioada derulării: 1999-2002. Rolul: membru de echipă.

G–7. Titlul contractului: System theory approach of the information of the biological signals for diagnostics (OTKA T042990). Beneficiar: Universitatea Tehnică și Economică Budapesta, Finanțator: OTKA Ungaria. Valoarea totală și valoarea care revine instituției: 48000 EUR. Perioada derulării: 2003/01-2007/12. Rolul: membru de echipă.

G–8. Titlul contractului: Safety critical information systems for system diagnostics (OTKA F046726). Beneficiar: Universitatea Széchenyi István din Győr

(Ungaria), Finanțator: OTKA Ungaria. Valoarea totală și valoarea care revine instituției: 23000 EUR. Perioada derulării: 2004/01-2008/12. Rolul: membru de echipă.

G–9. Titlul contractului: Development of new measurement and control methods, and their bioinformatical applications, for early diagnosis and optimal treatment of metabolic diseases (OTKA T069055). Beneficiar: Universitatea Tehnică și Economică Budapesta, Finanțator: OTKA Ungaria. Valoarea totală și valoarea care revine instituției: 40000 EUR. Perioada derulării: 2007/07-2010/12. Rolul: membru de echipă.

G–10. Titlul contractului: Novel methods for the improvement of medical diagnostics (OTKA T082066). Beneficiar: Universitatea Tehnică și Economică Budapesta, Finanțator: OTKA Ungaria. Valoarea totală și valoarea care revine instituției: 57000 EUR. Perioada derulării: 2010/04-2015/03. Rolul: membru de echipă.

G–11. Titlul contractului: Sistem de vizualizare 3D pe baza imaginilor medicale. Beneficiar: Universitatea Sapientia, Finanțator: IPC Sapientia. Valoarea totală și valoarea care revine instituției: 10000 RON. Perioada derulării: 2004/10-2005/09. Rolul: membru de echipă.

G–12. Titlul contractului: Determinarea optimală a turbulențelor inimii bazate pe înregistrări Holter ECG. Beneficiar: Universitatea Sapientia, Finanțator: IPC Sapientia. Valoarea totală și valoarea care revine instituției: 10000 RON. Perioada derulării: 2005/10-2006/09. Rolul: membru de echipă.

G–13. Titlul contractului: Modelarea robusta a unor celule din inima. Beneficiar: Universitatea Sapientia, Finanțator: IPC Sapientia. Valoarea totală și valoarea care revine instituției: 10000 RON. Perioada derulării: 2007/10-2008/09. Rolul: membru de echipă.

G–14. Titlul contractului: Studiul algoritmilor hibrizi de clasificare nesupraveghetă cu aplicații în prelucrarea imaginilor. Beneficiar: Universitatea Sapientia, Finanțator: IPC Sapientia. Valoarea totală și valoarea care revine instituției: 10000 RON. Perioada derulării: 2008/10-2009/09. Rolul: membru de echipă.

G–15. Titlul contractului: Problemele de scheletonizare eficienta a obiectelor spatiale variabile. Beneficiar: Universitatea Sapientia, Finanțator: IPC Sapientia. Valoarea totală și valoarea care revine instituției: 42000 RON. Perioada derulării: 2009/10-2012/09. Rolul: membru de echipă.

G–16. Titlul contractului: Călire simulată distribuită, bazată pe modele. Beneficiar: Universitatea Sapientia, Finanțator: IPC Sapientia. Valoarea totală și valoarea care revine instituției: 30000 RON. Perioada derulării: 2011/10-2014/09. Rolul: membru de echipă.

H. Creaţia artistică

H1 Participări la manifestaţii artistice internaţionale

H2. Participări la manifestaţii artistice naţionale

H3. Expoziţii, filme, spectacole, concerte, discuri de autor, opere internaţionale

H4. Expoziţii, filme, spectacole, concerte, discuri de autor, opere naţionale

H5. Produse cu drept de proprietate intelectuală în domeniul artistic

III. RECUNOAȘTEREA

I. Premii, distincții.

Premii individuale:

I–1. János Bolyai Fellowship Award (Hungarian Academy of Sciences), 2010

I–2. Premiul Zoltán Győrfi pentru rezultate excelente în studii și sport, 1993

Premii obținute de echipa Hand-in-Scan (împreună cu Tamás Haidegger, Ákos Lehotsky și Melinda Nagy):

I–3. EIB Social Innovation Tournament, 1st Prize (Luxembourg), 2012

I–4. Best Of Biotech - LISA VR Medtech Award (Viena, Austria), 2012

I–5. Innovact Campus Award, 1st Prize (Reims, France), 2011

I–6. ICPIC Innovation Academy Award, 1st Prize (Geneva, Switzerland), 2011

I–7. Outstanding Student Humanitarian Prize at IEEE Presidents' Change the World Competition, 2011

Premii obținute împreună cu co-autori:

I–8. Șapte articole premiate (C1–3, C1–4, C1–10, C1–11, C1–12, C1–13, C1–14) în cadrul programul Resurse Umane – Premierea Rezultatelor (UEFISCDI)

J. Citări

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h-Index: 8
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Publicația C6–3 are 21 citări independente
Publicația C6–17 are 18 citări independente
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J–1. Cai WL, Chen SC, Zhang DQ: Fast and robust fuzzy c-means clustering algorithms incorporating local information for image segmentation, Pattern Recognition 40:825-838, 2007, ISSN 0031-3203, IF: 2.632
J–2. Krinidis S, Chatzis V: A robust fuzzy local information c-means clustering algorithm. IEEE Transactions on Image Processing 19(5):1328-1337, 2010, ISSN 1057-7149, IF: 3.109
J–3. Zhou H, Schaefer G, Sadka A, Celebi ME: Anisotropic mean shift based fuzzy c-means segmentation of dermoscopy images. IEEE J Selected Topics in Signal Processing, Special Issue on Digital Image Processing Techniques for Oncology 3(1):26-34, 2009, ISSN 1932-4553, IF: 3.297
J–4. Wang ZM, Soh YC, Song Q, Sim K: Adaptive spatial information-theoretic clustering for image segmentation, Pattern Recognition 42(9): 2029-2044, 2009, ISSN 0031-3203, IF: 2.632
J–5. Di Martino F, Loia V, Sessa S: A segmentation method for images compressed by fuzzy transforms. Fuzzy Sets and Systems 161(1):56-74, 2010, ISSN 0165-3375, IF: 1.749
J–6. He YY, Yousuf Hussaini M, Ma JW, Shafei B, Steidl G: A new fuzzy c-means method with total variation regularization for segmentation of images with noisy and incomplete data, Pattern Recognition, 45(9):3463-3471, 2012, ISSN 0031-3203, IF: 2.632
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J–9. Ji ZX, Xia Y, Chen Q, Sun QS, Xia DS, Feng DD: Fuzzy c-means clustering with weighted image patch for image segmentation. Applied Soft Computing Journal 12(6):1659-1667, 2012, ISSN 1568-4946, IF: 2.140
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K. Alte realizări semnificative.

Data,

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Semnătura,