

# Szilágyi Sándor Miklós

## Lista de lucrări

### Lucrările cele mai relevante

- i. **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: 1.240
- ii. 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
- iii. Szilágyi L, **Szilágyi SM**: Efficient Markov clustering algorithm for protein sequence grouping. 35th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Osaka, pp. 639-642 (2013), ISBN 978-1-4577-0214-3
- iv. Szilágyi L, Kovács L, **Szilágyi SM**: Synthetic test data generation for hierarchical graph clustering methods. 21st International Conference on Neural Information Processing (ICONIP 2014 Kuching, Malaysia). In: Kiong LC, et al (Eds): Neural Information Processing, Springer, LNCS, vol. 8835, pp. 303-310 (2014), ISBN: 978-3-319-12639-5
- v. Szilágyi L, Nagy LL, **Szilágyi SM**: Recent advances in improving the memory efficiency of the TRIBE MCL algorithm. 22nd International Conference on Neural Information Processing (ICONIP 2015 Istanbul, Turkey). In: Arik S, et al (Eds): Neural Information Processing, Springer, LNCS, vol. 9490, pp. 28-35 (2015), ISBN: 978-3-319-26534-6
- vi. **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
- vii. **Szilágyi SM**, Szilágyi L, Luca CT, Cozma D, Ivănică G, Enăchescu C: Spatial modeling of the Wolff-Parkinson-White syndrome induced ventricular fibrillation. 39th Annual Conference on Computing in Cardiology (CinC 2012 Kraków, Poland). *COMPUTERS IN CARDIOLOGY* 39:753-756 (2012), ISSN: 2325-8861
- viii. **Szilágyi SM**, Szilágyi L, Hirsbrunner B: Simulation of arrhythmia using adaptive spatio-temporal resolution. 40th Annual Conference on Computing in Cardiology (CinC 2013 Zaragoza, Spain). *COMPUTERS IN CARDIOLOGY* 40:365-368 (2013), ISSN: 2325-8861
- ix. **Szilágyi SM**, Szilágyi L, Hirsbrunner B: Modeling the Influence of High Fibroblast Level on Arrhythmia Development and Obstructed Depolarization Spread. 40th Annual Conference on Computing in Cardiology (CinC 2013 Zaragoza, Spain). *COMPUTERS IN CARDIOLOGY* 40:45-48 (2013), ISSN: 2325-8861

- x. 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

## Teza de doctorat

1. **Szilágyi SM**: Dynamic modeling of the human heart. PhD Thesis, BME Budapest (2008).

## Cărți

2. **Szilágyi SM**: Dynamic modeling of the human heart. Scientia Publishing House, Cluj Napoca (2009), 200p, ISBN: 978-973-1970-11-0.

## Capitole de cărți publicate în străinătate

3. 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, 578-586, ISBN: 978-1599048895 (2008).
4. **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, 1374-1382, ISBN: 978-1599048895 (2008).
5. **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, 1253-1260, ISBN: 978-1599048895, (2008).
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, 472-479, ISBN: 978-1599048895 (2008).
7. **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, 1261-1268, ISBN: 978-1599048895 (2008).
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, 921-930, ISBN: 978-1599048895 (2008).
9. Szilágyi L, **Szilágyi SM**, Benyó Z: A Modified Fuzzy C-Means Classifier for Fast Segmentation of MR Brain Images. In: Melín P, Castillo O, Ramírez EG, Kaczprzyk J,

Pedrycz W (Eds.): Analysis and Design of Intelligent Systems Using Soft Computing Techniques, Springer International Publishing Switzerland, Advances in Soft Computing vol. 41, pp. 119-127 (2007), ISBN: 978-3-540-72431-5.

10. **Szilágyi SM**, Szilágyi L, Benyó Z: Spatial Heart Simulation and Analysis Using Unified Neural Network. In: Melín P, Castillo O, Ramírez EG, Kaczpryż J, Pedrycz W (Eds.): Analysis and Design of Intelligent Systems Using Soft Computing Techniques, Springer International Publishing Switzerland, Advances in Soft Computing vol. 41, pp. 346-354 (2007), ISBN: 978-3-540-72431-5.
11. **Szilágyi SM**, Szilágyi L, Benyó Z: Support Vector Machine-Based ECG Compression. In: Melín P, Castillo O, Ramírez EG, Kaczpryż J, Pedrycz W (Eds.): Analysis and Design of Intelligent Systems Using Soft Computing Techniques, Springer International Publishing Switzerland, Advances in Soft Computing vol. 41, pp. 737-745 (2007), ISBN: 978-3-540-72431-5.

### Lucrări științifice publicate în reviste cotate ISI

12. Szilágyi L, **Szilágyi SM**: Generalized suppression rules for the suppressed fuzzy c-means algorithm. NEUROCOMPUTING 139:298–309 (2014), ISSN: 0925-2312, IF: 2.083
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: 1.240
14. **Szilágyi SM**: Spatio-Temporal Shape Parameterization of the Human Ventricles. Acta Polytechnica Hungarica 12(3):59-72, 2015, ISSN: 1785-8860, IF: 0.649\*
15. **Szilágyi SM**, Hirsbrunner B: Cardiac Cell's Mitochondria Modeling in the Presence of Hypoxia, EXPERIMENTAL AND CLINICAL CARDIOLOGY 20(8):4982-4993 (2014), ISSN: 1205-6626, IF: 0.758\*
16. **Szilágyi SM**, Hirsbrunner B: The influence of long-term hypoxia on activation potential of cardiac cells, EXPERIMENTAL AND CLINICAL CARDIOLOGY 20(7):174-187 (2014), ISSN: 1205-6626, IF: 0.758\*
17. 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
18. **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
19. 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
20. **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

21. 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
22. 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 (2010), ISSN: 1432-7643, IF: 1.512
23. **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

### Lucrări publicate în reviste indexate în baze de date internaționale (BDI)

24. 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
25. **Szilágyi SM**: 3D Heart Simulation and Analysis. *Periodica Polytechnica Ser. Electrical Engineering* 50(1-2):79–90 (2006), ISSN 0324-6000.
26. **Szilágyi SM**, Szilágyi L, Benyó Z: Unified Neural Network Based Adaptive ECG Signal Analysis and Compression. *Scientific Bulletin of the Politechnica University of Timișoara, Transactions on Automatic Control and Computer Science* 51(65):27–36 (2006), ISSN 1224-600X.
27. **Szilágyi SM**, Benyó Z: Event Recognition from ECG Signal Analysis and 3D Heart Model. *Scientific Bulletin of Polytechnica University of Timișoara (Romania), Transactions on Automatic Control and Computer Science* 49(63):123-128 (2004), ISSN 1224-600X.
28. **Szilágyi SM**, Frigy A, Benyó Z: Sensibility Analysis of the Arruda Localization Method. *Scientific Bulletin of Polytechnica University of Timișoara (Romania), Transactions on Automatic Control and Computer Science* 49(63):129-132 (2004), ISSN 1224-600X.

### Lucrări publicate în alte reviste

29. Máthé Zs, Stan J, **Szilágyi SM**: A nyilvános kulcsú kriptográfia egy lehetséges alkalmazása I., *Firka*, 2005-06(5), 182-186.
30. Máthé Zs, Stan J, **Szilágyi SM**: A nyilvános kulcsú kriptográfia egy lehetséges alkalmazása II., *Firka*, 2005-06(6), 223-227.
31. **Szilágyi SM**, Benyó Z: Szívmodell alapú diagnosztika, *ORKI Orvos- és Kórháztechnika*, 42(3): 84-86 2004, ISSN: 1585-7360.
32. **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.
33. 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).

## Lucrări științifice în volume ale unor conferințe internaționale

34. Szilágyi L, Nagy LL, **Szilágyi SM**: Recent advances in improving the memory efficiency of the TRIBE MCL algorithm. In: Sabri Arik et al (Eds.): Neural Information Processing, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 9490, pp. 28-35 (2015), ISBN: 978-3-319-26534-6
35. Szilágyi L, **Szilágyi SM**, Hirsbrunner B: A fast and memory-efficient hierarchical graph clustering algorithm. In: Loo CK, Yap KS, Wong KW, Teoh A, Huang K (Eds.): Neural Information Processing, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 8834, pp. 247-254 (2014), ISBN: 978-3-319-12636-4
36. Szilágyi L, Kovács L, **Szilágyi SM**: Synthetic test data generation for hierarchical graph clustering methods. In: Loo CK, Yap KS, Wong KW, Teoh A, Huang K (Eds.): Neural Information Processing, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 8835, pp. 303-310 (2014), ISBN: 978-3-319-12639-5
37. 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 Computer Science vol. 8825, pp. 158-169 (2014), ISBN: 978-3-319-12053-9
38. 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
39. 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
40. 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 Computer Science vol. 8234, pp. 214-225 (2013), ISBN: 978-3-642-41549-4.
41. **Szilágyi SM**, Szilágyi L, Hirsbrunner B: Study of electric and mechanic properties of the implanted artificial cardiac tissue using a whole heart model. In: Ruiz-Schulcloper J, Sanniti di Baja G (Eds.): Progress in Pattern Recognition, Image Analysis, Computer Vision, and Applications, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 8259, pp. 230-237 (2013), ISBN: 978-3-642-41826-6.
42. Szilágyi L, **Szilágyi SM**: Efficient Markov clustering algorithm for protein sequence grouping. 35th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Osaka, pp. 639-642 (2013), ISBN 978-1-4577-0214-3
43. **Szilágyi SM**, Szilágyi L, Hirsbrunner B: Simulation of arrhythmia using adaptive spatio-temporal resolution. - Computers in Cardiology 40:365-368 (2013)

44. **Szilágyi SM**, Szilágyi L, Hirsbrunner B: Modeling the influence of high fibroblast level on arrhythmia development and obstructed depolarization spread. *Computers in Cardiology* 40:45-48 (2013)
45. **Szilágyi SM**, Enăchescu C: Vascular System Reconstruction from MR Images Using Active Appearance Model. 7th IEEE International Symposium on Applied Computational Intelligence and Informatics, SACI 2012 Timișoara, 2012, ISBN 978-1-4673-1012-3.
46. **Szilágyi SM**, Szilágyi L, Enăchescu C: Hypoxia modeling using Luo-Rudy II cell model. *Computers in Cardiology* 39:885-888 (2012)
47. **Szilágyi SM**, Szilágyi L, Luca CT, Cozma D, Ivănică G, Enăchescu C: Spatial modeling of the Wolff-Parkinson-White syndrome induced ventricular fibrillation. *Computers in Cardiology* 39:753-756 (2012)
48. **Szilágyi SM**, Szilágyi L: Study of self maintaining spatial spiral waves in ventricular tissue. *Computers in Cardiology* 39:853-856 (2012)
49. **Szilágyi SM**: A Cellular Energetic Extension Applied to the Luo-Rudy II Ventricular Cell Model. *Computers in Cardiology* 39:857-860 (2012)
50. **Szilágyi SM**, Szilágyi L, Enăchescu C: Hypoxia modeling in ventricular cells using Beeler-Reuter model. *IFAC Symposium on Biological and Medical Systems* pp. 426-431 (2012)
51. Szilágyi L, **Szilágyi SM**, Iclănzan D, Szabó L: Efficient 3D Curve Skeleton Extraction from Large Objects. In: San Martín C, Kim SW (Eds.): *Progress in Pattern Recognition, Image Analysis, Computer Vision, and Applications*, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 7042, pp. 133-140 (2011), ISBN: 978-3-642-25084-2.
52. Szilágyi L, Iclănzan D, Crăciun L, **Szilágyi SM**: An efficient approach to intensity inhomogeneity compensation using c-means clustering models. In: San Martín C, Kim SW (Eds.): *Progress in Pattern Recognition, Image Analysis, Computer Vision, and Applications*, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 7042, pp. 312-319 (2011), ISBN: 978-3-642-25084-2.
53. Szilágyi L, **Szilágyi SM**, Iclănzan D, Szabó L: Efficient skeleton extraction from large 3-D objects. In: 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. Mureș)*, pp. 75-86, 2011, ISBN 978-973-1970-54-7
54. 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 Computer Science vol. 6408, pp. 140-151 (2010), ISBN: 978-3-642-16291-6.
55. Szilágyi L, **Szilágyi SM**, Benyó Z: A Unified Approach to c-Means Clustering Models. *IEEE Conference on Fuzzy Systems*, Jeju Island (S. Korea), pp. 456-461 (2009), ISBN 978-1-4244-3597-5
56. Szilágyi L, Iclănzan D, **Szilágyi SM**, Dumitrescu D, Hirsbrunner B: A Generalized C-Means Clustering Model Using Optimized Via Evolutionary Computation. *IEEE Conference on Fuzzy Systems*, Jeju Island (S. Korea), pp. 451-455 (2009), ISBN 978-1-4244-3597-5

57. Szilágyi L, **Szilágyi SM**, Benyó B, Benyó Z: Application of Hybrid c-Means Clustering Models in Inhomogeneity Compensation and MR Brain Image Segmentation, IFAC Symposium on Modeling and Control in Biological and Medical Systems, Aalborg (Denmark), pp. 204-209 (2009)
58. **Szilágyi SM**, Szilágyi L, Iclănzan D, Benyó Z: A weighted patient specific electromechanical model of the heart, IFAC Symposium on Modeling and Control in Biological and Medical Systems, Aalborg (Denmark), pp. 270-275 (2009)
59. Szilágyi L, **Szilágyi SM**, Benyó B, Benyó Z: Application of hybrid c-means clustering models in inhomogeneity compensation and MR brain image segmentation. SACI 2009 Timișoara, pp. 105-110, ISBN 978-1-4244-4478-6 (2009)
60. **Szilágyi SM**, Szilágyi L, Iclănzan D, Benyó Z: A weighted patient specific electromechanical model of the heart. SACI 2009 Timișoara, pp. 111-116, ISBN 978-1-4244-4478-6 (2009)
61. 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 Computer Science vol. 5285, pp. 146-157 (2008), ISBN: 978-3-540-88268-8.
62. 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 Computer Science vol. 5265, pp. 110-120 (2008), ISBN: 978-3-540-88434-7.
63. Szilágyi L, **Szilágyi SM**, Benyó Z: A thorough analysis of the suppressed fuzzy c-means algorithm. In: Ruiz-Schulcloper J, Kropatsch WG (Eds.): Progress in Pattern Recognition, Image Analysis and Applications, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 5197, pp. 203-210 (2008), ISBN: 978-3-540-85919-2.
64. Szilágyi L, Iclănzan D, **Szilágyi SM**, Dumitrescu D: GeCiM: A novel generalized approach to c-means clustering. In: Ruiz-Schulcloper J, Kropatsch WG (Eds.): Progress in Pattern Recognition, Image Analysis and Applications, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 5197, pp. 235-242 (2008), ISBN: 978-3-540-85919-2.
65. **Szilágyi SM**, Görög LK, Szilágyi L, Luca CT, Cozma D, Ivanica G, Benyó Z: An enhanced accessory pathway localization method for efficient treatment of Wolff-Parkinson-White syndrome. In: Ruiz-Schulcloper J, Kropatsch WG (Eds.): Progress in Pattern Recognition, Image Analysis and Applications, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 5197, pp. 269-276 (2008), ISBN: 978-3-540-85919-2.
66. Szilágyi L, **Szilágyi SM**, Dávid L, Benyó Z: Multi-stage FCM-based intensity inhomogeneity correction for MR brain image segmentation. In: Kurková V, Neruda R, Koutník J (Eds.): Artificial Neural Networks, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 5164, pp. 527-536 (2008), ISBN: 978-3-540-85237-7.
67. Szilágyi L, **Szilágyi SM**, Dávid L, Benyó Z: Inhomogeneity compensation for MR brain image segmentation using a multi-stage FCM-based approach. 30th Annual International

- Conference of IEEE Engineering in Medicine and Biology Society, Vancouver 3896–3899, ISBN 978-1-4244-1814-5, ISSN 1557-170X, (2008)
68. Csernath G, Szilagyi L, **Szilagyi SM**, Fordos G, Benyo Z: A Novel ECG Telemetry and Monitoring System Based on Z-Wave Communication. 30th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Vancouver 2361-2364, ISBN 978-1-4244-1814-5, ISSN 1557-170X, (2008)
  69. Szilagyi L, David L, **Szilagyi SM**, Benyo B, Benyo Z: Improved Intensity Inhomogeneity Correction Techniques in MR Brain Image Segmentation. 17th IFAC World Congress, Seoul, 9625-9630, ISBN 978-1-1234-7890-2 (2008).
  70. Szilagyi L, **Szilagyi SM**, Benyo B, Benyo Z: A Novel Clustering Method for Quick Partial Volume Estimation in MR Brain Images. 17th IFAC World Congress, Seoul, 9619-9624, ISBN 978-1-1234-7890-2 (2008).
  71. **Szilagyi SM**, Szilagyi L, Benyo 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.
  72. **Szilagyi SM**, Szilagyi L, Benyo Z: Adaptive ECG compression using support vector machine. In: Rueda L, Mery D, Kittler J (Eds.): Progress in Pattern Recognition, Image Analysis and Applications, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 4756, pp. 594-603 (2007), ISBN: 978-3-540-76724-4.
  73. **Szilagyi SM**, Szilagyi L, Frigy A, Gorog LK, Benyo Z: Unified neural network based pathologic event reconstruction using spatial heart model. In: Rueda L, Mery D, Kittler J (Eds.): Progress in Pattern Recognition, Image Analysis and Applications, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 4756, pp. 851-860 (2007), ISBN: 978-3-540-76724-4.
  74. **Szilagyi SM**, Szilagyi L, Benyo Z: Echocardiographic image sequence compression based on spatial active appearance model. In: Rueda L, Mery D, Kittler J (Eds.): Progress in Pattern Recognition, Image Analysis and Applications, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 4756, pp. 841-850 (2007), ISBN: 978-3-540-76724-4.
  75. Szilagyi L, **Szilagyi SM**, Benyo 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.
  76. Szilagyi L, **Szilagyi SM**, Benyo Z: Efficient feature extraction for fast segmentation of MR brain images. In: Ersboll BK, Pedersen KS (Eds.): Image Analysis, Springer International Publishing Switzerland, Lecture Notes in Computer Science vol. 4522, pp. 611-620 (2007), ISBN: 978-3-540-73039-2.
  77. **Szilagyi SM**, Szilagyi L, Benyo 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.



78. 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.
79. 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.
80. **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.
81. **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
82. 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.
83. Szilágyi L, **Szilágyi SM**, Fördös 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.
84. **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.
85. Iclănzan D, **Szilágyi SM**, Szilágyi L, Benyó Z: Advanced Heuristic Methods for ECG Parameter Estimation. CONTI 2006, Int'l Conference on Technical Informatics, Timișoara (Romania), pp. 215-220, 2006, ISBN 9736253201
86. Szilágyi L, **Szilágyi SM**, Benyó Z: Medical image segmentation for virtual endoscopy. 16th IFAC World Congress, Prague 243–247 (2005).
87. **Szilágyi SM**, Szilágyi L, Benyó Z: Recognition of various events from 3-D heart model. 16th IFAC World Congress, Prague 107–112 (2005).
88. **Szilágyi SM**, Szilágyi L, Benyó Z: Risk estimation techniques in case of WPW syndrome. 16th IFAC World Congress, Prague 184–189 (2005).
89. **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.
90. 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.
91. Máthé Zs, Görög LK, Creț O, László SE, **Szilágyi SM**: Iterative ECG Signal Filtering for Better QRS Recognition, EMBEC'05, 3rd European Medical & Biological Engineering Conference, Prague, IFMBE Proc. vol 11., paper#2260, pp. 1-6, 2005, ISSN 1727-1983
  92. Görög LK, Máthé Zs, Creț O, **Szilágyi SM**: Sensibility Analysis of the Arruda Localization Method, EMBEC'05, 3rd European Medical & Biological Engineering Conference, Prague, IFMBE Proc. vol 11., paper#2309, pp. 1-5, 2005, ISSN 1727-1983
  93. 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
  94. 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.
  95. **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.
  96. **Szilágyi SM**, Benyó Z, Dávid L: Heart Model Based ECG Signal Processing. MCBMS'03, 5th IFAC Symposium on Modeling and Control in Biomedical Systems, Melbourne (Australia), pp. 213-217, 2003, ISBN 0080441599.
  97. **Szilágyi SM**, Benyó Z, Dávid L: Iterative ECG Filtering for Better Malfunction Recognition and Diagnosis. MCBMS'03, 5th IFAC Symposium on Modeling and Control in Biomedical Systems, Melbourne (Australia), pp. 295-300, 2003, ISBN 0080441599.
  98. **Szilágyi SM**, Benyó Z, Dávid L - ECG Signal Compression and Noise Distortion Effect Analysis, World Congress on Medical Physics and Biomedical Engineering, Sydney, Australia (2003), 4391.pdf, ISBN: 1-877040-14-2.
  99. **Szilágyi SM**, Benyó Z, Dávid L - WPW Syndrome Identification and Classification Using ECG Analysis, World Congress on Medical Physics and Biomedical Engineering, Sydney, Australia (2003), 4423.pdf, ISBN: 1-877040-14-2.
  100. 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.
  101. **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.
  102. **Szilágyi SM**: Számítógépes diagnosztikai technikai kérdései, BUDAMED'2002 Konferencia Orvosbiológiai és Klinikai Mérnököknek, p. 56-57, Budapest, 2002.

103. 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.
104. **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.
105. **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.
106. **Szilágyi SM**: The limits of heart-model-based computerized ECG diagnosis. 22nd Annual International Conference of IEEE Engineering in Medicine and Biology Society, Chicago 1913–1916 (2000), ISBN: 0-7803-6465-1.
107. **Szilágyi SM**: Szívmodell alapú számítógépes EKG diagnosztika, BUDAMED'99, pp. 113-116, Budapest, 1999.
108. **Szilágyi SM**: Non-linear adaptive prediction based ECG signal filtering. 21st Annual International Conference of IEEE Engineering in Medicine and Biology Society, Atlanta 296 (1999), ISBN: 0-7803-5674-8.
109. **Szilágyi SM**: Event recognition, separation and classification from ECG recordings. 20th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Hong Kong 236–239 (1998), ISBN: 0-7803-5167-3
110. Benyó Z, **Szilágyi SM**, Várady P, Benyó B: Biomedical engineering education in Hungary. 20th Annual International Conference of IEEE Engineering in Medicine and Biology Society, Hong Kong 3359–3360 (1998), ISBN: 0-7803-5167-3
111. **Szilágyi SM**: Comparison of the neural-network-based adaptive filtering and wavelet transform for R, T and P waves detection. ITAB'1997, Information Technology in Applications Biomedicine, IEEE Engineering in Medicine and Biology Society Region 8 Conference, Prague, pp. 73-75, 1997, ISBN 0780343182
112. **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).
113. **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).

## Lucrări științifice în volume ale unor conferințe naționale

114. László SE, **Szilágyi SM**: Mobil EKG mérés és ritmusanalízis, X. Fiatal Műszakiak Tudományos Ülésszaka, Cluj-Napoca, 2005, p. 193-196, ISBN 973-8231-44-2

115. Görög LK, **Szilágyi SM**: Using reading Techniques in Complex Software-developing Systems, 15th International Conference in Computer Science and Education, Cluj-Napoca, 2005, pp. 153-159, ISBN 973-7840-08-1
116. **Szilágyi SM**, László SE, Görög LK: Complex Heart Diagnosis Methods, 15th International Conference in Computer Science and Education, Cluj-Napoca, 2005, pp. 192-201, ISBN 9737840-08-1
117. László SE, **Szilágyi SM**, Görög LK: ECG Signal Measurement and Rhythm Analysis, 15th International Conference in Computer Science and Education, Cluj-Napoca, 2005, pp. 202-209, ISBN 973-7840-08-1
118. Szász ZE, **Szilágyi SM**: MRI Image Analysis with Genetic Algorithms, 15th International Conference in Computer Science and Education, Cluj-Napoca, 2005, pp. 210-219, ISBN 973-7840-08-1
119. László SE, **Szilágyi SM**: 3D Modellezés Lehetőségei, IX. Fiatal Műszakiak Tudományos Ülésszaka, Cluj-Napoca, 2004. p. 147-150, ISBN 973-8231-33-7
120. Görög LK, Máthé Zs, Komáromi L, **Szilágyi SM**: A mesterséges intelligencia labirintusa, IX. Fiatal Műszakiak Tudományos Ülésszaka, Cluj-Napoca, 2004, p. 171-174, ISBN 973-8231-33-7
121. Görög LK, Komáromi L, Máthé Zs, **Szilágyi SM**: Az örült labirintus, IX. Fiatal Műszakiak Tudományos Ülésszaka, Cluj-Napoca, 2004, p. 174-178, ISBN 973-8231-33-7
122. Máthé Zs, Görög LK, Komáromi L, **Szilágyi SM**: Mesterséges intelligencia társasjátékokban, 14 th International Conference in Computer Science and Education, Cluj-Napoca, 2004, ISBN 973860978-X
123. **Szilágyi SM**: Gyors biológiai jelek analízise valós-idejű monitorizáló rendszerekben, Információs Technológiák és Technológiai Transzfer Nemzetközi Konferencia, Székesfehérvár, 1998, május, 14-16, p. 32-36, ISBN 963-421-548-3
124. **Szilágyi SM**: Fast biological signal analysis and real-time processing, Symposium on Fieldbus Systems and Application Technics, Budapest, 1998. Február 17-20, p. 45-50
125. Szilágyi L, **Szilágyi SM**: Paraméterbecslő módszerek alkalmazása szívritmiák felismerésére, III. Fiatal Műszakiak Tudományos Ülésszaka, Cluj-Napoca, 1998, pp. 61-64.
126. **Szilágyi SM**: Telemetry, Analysis and On-line Processing of the ECG Signal, microCAD '97 International Computer Science Conference, Miskolc, February 26-27, 1997., p. 69-73
127. Szilágyi L, **Szilágyi SM**: Az EKG jel tömörítése genetikai algoritmus alkalmazásával, II. Fiatal Műszakiak Tudományos Ülésszaka, Cluj-Napoca, 1997, pp. 149-152.
128. **Szilágyi SM**, Szilágyi L, Moldován IZ: Új lehetőségek az orvostudományban az EKG jelek feldolgozása terén, I. Fiatal Műszakiak Tudományos Ülésszaka, Cluj-Napoca, 1996, pp. 1-4.

Tîrgu Mureş, 15 decembrie 2015