



Raport de cercetare ACFA

2019-2023

În perioada 2019-2023 în cadrul centrului și-au desfășurat activitatea științifică 27 de membri (dintre care trei conducători de doctorat), conform tabelului prezentat în documentul anexat “Lista membrilor ACFA Sapiientia”. Planul de cercetare al centrului, formulat în decembrie 2018 pentru perioada 2019-2023 ani este prezentat în documentul anexat “Plan de cercetare ACFA Sapiientia”.

Cercetările sunt din domeniile prevăzute în planul de cercetare pe perioada 2019–2023:

- Prelucrarea semnalelor (semnale biologice, semnale vocale) și prelucrarea imaginilor
- Studiul materialelor, tehnologii neconvenționale și tehnica plasmei,
- Cercetări în domeniile acționări electrice, electronică de putere și mecatronică,
- Tehnologii de prelucrare a informațiilor, sisteme de comunicații,
- Tehnici avansate de conducere automată (sisteme de control implementate pe rețea, sisteme de control inteligente)

Membrii Centrului au obținut în perioada 2019-2023 un număr de 12 contracte de cercetare în valoare de 314017 RON conform Anexei 4:

- 2019 - 3 contracte de cercetare în valoare de 139417 RON
- 2020 - 4 contracte de cercetare în valoare de 18300 RON
- 2021 - 2 contracte de cercetare în valoare de 55150 RON
- 2022 - 3 contracte de cercetare în valoare de 51750 RON
- 2023 - 2 contracte de cercetare în valoare de 49400 RON

Activitatea centrului a fost evaluat conform criteriilor aprobate de Senatul universității, și este prezentat sintetic în tabelul 1. Anexele specificate în tabel sunt prezentate în continuare.

1. Tabel cu criterii de evaluare

1.	Criterii primare de performanță	nr.	Punctaj
1.1.	Lucrări științifice/tehnice publicate în reviste de specialitate cotate ISI		
	Număr de lucrări științifice ×30	28	840
	Punctaj cumulativ ISI ¹ ×5	28*	140
	Număr de citări în reviste de specialitate cotate ISI ² ×5	300*	3000
	<i>(Lista lucrărilor și citărilor, grupate pe ani, se atașează ca anexa. 1.1)</i>		
1.2.	Brevete de invenție³		
	Număr de brevete×30		
	Număr de citări de brevete în sistemul ISI ×5		
	<i>(Lista brevetelor și citărilor, grupate pe ani, se atașează ca anexa nr. 1.2)</i>		
1.3.	Produse și tehnologii rezultate din activități de cercetare, bazate pe		

¹ Punctajul ISI se obține prin însumarea factorilor de impact ai publicațiilor respective.

² Sunt excluse autocitățile.

³ Se specifică dacă brevetul este național/internațional (USPTO, EPO, JPO) și numărul brevetului.

* Nota: valori subestimate



	brevete, omologări sau inovații proprii. Studii prospective și tehnologice și servicii rezultate din activitatea de cercetare-dezvoltare, comandate de beneficiar (Se indică procedura, firma care utilizează produsul, serviciul și tehnologia)		
	Număr de produse, tehnologii, studii, servicii ×20		
	(Lista produselor, serviciilor și tehnologiilor, grupate pe ani, se atașează ca anexa 1.3)		
1.4	Cărți (capitole de cărți) științifice la edituri internaționale ×3 pe 50 pag.	7	19
	Total punctaj cap. 1		3999

2.	Criterii secundare de performanță	nr.	Punctaj
2.1.	Lucrări științifice (tehnice) publicate în reviste de specialitate⁴ fără cotație ISI		
	Număr de lucrări ×6	12	72
	Număr de citări ×1 (Lista lucrărilor și citărilor grupate pe ani se atașează ca anexa 2.1)	150*	150
2.2.	Lucrări științifice prezentate la conferințe cu comitet de program		
	Număr de comunicări prezentate ×6 (Lista comunicărilor grupate pe ani se atașează ca anexa 2.2)	60	360
2.3.	Modele fizice, modele experimentale, modele funcționale, prototipuri, normative, proceduri, metodologii, reglementari și planuri tehnice noi sau perfecționate, realizate în cadrul programelor naționale sau comandate de beneficiar		
	Număr de modele, normative, proceduri etc. ×5 (Lista modelelor, normativelor etc., grupate pe ani, se atașează ca anexa 2.3)		
2.4.	Lucrări științifice (tehnice) publicate în alte reviste științifice		
	Număr de lucrări ×2 (Lista lucrărilor grupate pe ani se atașează ca anexa 2.4)	3	6
2.5	Cărți (capitole de cărți) științifice sau traduceri de specialitate (pt. domeniul traducere-interpretare) ×1 pe 50 pag.		
2.6	Editare cărți ×1		
	Total punctaj cap. 2		588

3.	Prestigiul profesional	nr.	punctaj
3.1.	Membri (incluzând statutul de recenzor) în colectivele de redacție ale unor reviste (cotate ISI sau incluse în baze de date internaționale) sau în colective editoriale ale unor edituri internaționale recunoscute		
	Număr de prezențe în perioada pentru care se face evaluarea: ×20 (Nr. crt. Nume Titlul revistei/editurii anexa 3.1)	15	300
3.2.	Membri în colectivele de redacție ale revistelor recunoscute național (din categoria CNCS sau inclus în BDI)		
	Număr de prezențe în perioada pentru care se face evaluarea: ×10 (Nr. crt. Nume Titlul revistei/editurii anexa 3.2)		
3.3.	Premii internaționale obținute printr-un proces de selecție		
	Număr de premii: ×20 (Nr. crt. Nume Premiul Anul anexa 3.3)	1	20
3.4.	Premii naționale ale Academiei Române		
	Număr de premii: ×20 (Nr. crt. Nume Premiul Anul anexa 3.3)		
+ 3.5	Conducători de doctorat, membri ai unității de cercetare		

⁴ În cazul revistelor românești, sunt luate în considerare cele cotate CNCS și revistele incluse în BDI (baze de date internaționale).



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	Număr de conducători de doctorat: ×10 (Nr. crt. Nume anexa 3.5)	3	30
3.6.	Număr de doctori în știință, membri ai unității de cercetare		
	Număr de doctori în știință: ×10 (Nr. crt. Nume anexa 3.6)	24	240
	Total punctaj cap. 3		590
	TOTAL PUNCTAJ OBȚINUT (cap. 1 + cap. 2 + cap. 3)		5166

Punctaj obținut: $5166/27 = 38.26$ puncte/persoane/an

Punctaj necesar stabilit de Senat: 10 puncte/persoane/an



Anexa 1.1 Lucrări științifice/tehnice publicate în reviste de specialitate cotate ISI

2023

Szilágyi László, Szilágyi Sándor Miklós, Bíró Attila, Cuesta-Vargas Antonio, Martín-Martín Jaime, Machine Learning on Prediction of Relative Physical Activity Intensity Using Medical Radar Sensor and 3D Accelerometer, *SENSORS*, Vol. 23, No 7, 3595, 2023, pp. 1–22.

Szilágyi László, Szilágyi Sándor Miklós, Bíró Attila, Cuesta-Vargas Antonio, Martín-Martín Jaime, Synthetized Multilanguage OCR Using CRNN and SVTR Models for Realtime Collaborative Tools, *Applied Sciences*, Vol. 13, No 7, 4419, 2023, pp. 1–23.

Szilágyi László, Kovács Levente, Palatka József, Enhanced imagistic methodologies augmenting radiological image processing in interstitial lung diseases, *Acta Universitatis Sapientiae, Informatica*, Vol. 15, No 1, 2023, pp. 146–169.

Domokos József, Molnár László, Módy István, Isabella Ferando, Benjamin Liu, Parsa Mokhtar, Capturing the power of seizures: an empirical mode decomposition analysis of epileptic activity in the mouse hippocampus, *Frontiers in Molecular Neuroscience*, Vol. Volume 16, 2023, pp. 01–11.

2022

Lefkovits László, Szilágyi László, Lefkovits Szidónia, HGG and LGG Brain Tumor Segmentation in Multi-Modal MRI Using Pretrained Convolutional Neural Networks of Amazon Sagemaker, *Applied Sciences*, Vol. 12, No 7, 2022, ISSN 2076-3417, pp. 1–24.

Szilágyi László, Szepesi Patrik, Detection of pneumonia using convolutional neural networks and deep learning, *Biocybernetics and Biomedical Engineering*, Vol. 42, No 3, 2022, pp. 1012–1022.

Jánosi-Rancz Katalin Tünde, Szilágyi László, Szilágyi Sándor Miklós, Bíró Attila, Antonio Ignacio Cuesta-Vargas, Jaime Martín-Martín, Visual object detection with DETR to support video-diagnosis using conference tools, *Applied Sciences*, Vol. 12, No 5977, 2022, pp. 1–18.

Szilágyi László, Haidegger Tamás, Lehotsky Ákos, Kopcsóné Németh Irén, Nádor Csaba, Establishing a Learning Model for Correct Hand Hygiene Technique in a NICU, *Journal of Clinical Medicine*, Vol. 11, No 15 (4276), 2022, pp. 1–13.

Szilágyi László, Kovács Levente, Dénes-Fazakas Lehel, Eigner György, Siket Máté, Detection of Physical Activity Using Machine Learning Methods Based on Continuous Blood Glucose Monitoring and Heart Rate Signals, *SENSORS*, Vol. 22, No 21, 8568, 2022, pp. 1–21.

Szilágyi László, Kovács Levente, Pisak-Lukáts Ioan Marius, for the optimization of brain tumor segmentation from MRI data, *Acta Universitatis Sapientiae, Informatica*, Vol. 14, No 2, 2022, pp.



316–337.

Lőrinc Márton, Modeling and migration-based control of depopulation, *THEORETICAL POPULATION BIOLOGY*, Vol. 148, 2022, pp. 86–94.

Lefkovits László, Lefkovits Szidónia, HGG and LGG Brain Tumor Segmentation in Multi-Modal MRI Using Pretrained Convolutional Neural Networks of Amazon Sagemaker, *Applied Sciences*, Vol. 3620, No 12/7, 2022, ISSN 2076-3417, pp. 1–24.

Lefkovits László, Lefkovits Szidónia, Simina Emerich, Boosting Unsupervised Dorsal Hand Vein Segmentation with U-Net Variants, *Mathematics*, Vol. 10, No 15, 2022, ISSN 2227-7390, pp. 1–31.

2021

Győrfi Ágnes, Szilágyi László, Kovács Levente, A fully automatic procedure for brain tumor segmentation from multi-spectral MRI records using ensemble learning and atlas-based data enhancement, *Applied Sciences (MDPI)*, Vol. 11, No 2:564, 2021, ISSN 2076-3417, pp. 1–24.

Szabó László Zsolt, Szentesi Péter, Csernoch László, Claude Collet, Mercédès Charreton, Marianna Takács, Elementary calcium release events in the skeletal muscle cells of the honey bee *Apis mellifera*, *Scientific Reports*, Vol. 11, No 16731, 2021, pp. 1–14.

Márton Lőrinc, Fehér Áron, Approximation and control of a class of distributed delay systems, *SYSTEMS & CONTROL LETTERS*, Vol. 149, 2021, pp. 104882-1–104882-9.

Lőrinc Márton, Wijaya Kurniawan, Sensor Faults Isolation in Networked Control Systems: Application to Mobile Robot Platoons, *SENSORS*, Vol. 21, 2021, pp. 6720–6741.

Lőrinc Márton, Katalin Hangos, Passivity of Lotka–Volterra and quasi-polynomial systems, *NONLINEARITY*, Vol. 24, 2021, pp. 1880–1899.

2020

Brassai Sándor Tihamér, Székely István Zsolt, Radio Frequency (RF)-based, Real-Time, Indoor Localization System for Unmanned Aerial Vehicles and Mobile Robot Applications, *Acta Polytechnica Hungarica*, Vol. 17, No 9, 2020, pp. 19–40.

Albert Csilla, Bálint János, Balog Adalbert, Domokos József, Fazakas Csaba, Jakab-Farkas László, Mara Gyöngyvér, Domokos Erzsébet, Bíró-Janka Béla, Molnár Katalin, Arbuscular Mycorrhizal Fungus *Rhizophagus irregularis* Influences *Artemisia annua* Plant Parameters and Artemisinin Content under Different Soil Types and Cultivation Methods, *Microorganisms*, Vol. 8, No 6, 2020.

Márton Lőrinc, Switching control analysis and design in queue networks, *JOURNAL OF THE FRANKLIN INSTITUTE-ENGINEERING AND APPLIED MATHEMATICS*, Vol. 357, 2020, pp.



13–38.

Márton Lőrinc, Fehér Áron, Pituk Mihaly, Asymptotically ordinary linear Volterra difference equations with infinite delay, *APPLIED MATHEMATICS AND COMPUTATION*, Vol. 386, 2020, pp. 125499–125499.

Fodor Attila, Kelemen András, Kutasi Dénes Nimród, Magyar Attila, Neukirchner László Richárd, Constrained predictive control of three-phase buck rectifiers, *Acta Polytechnica Hungarica*, Vol. 17, No 1, 2020, pp. 41–60.

2019

Mihály István, Tamás Vajda, Dregus Ágnes, Szatmári Szabolcs, Rácz Attila, Domokos Lajos Csaba, Orbán-Kis Károly, Szász József Attila, Az orális levodopakezelés jellegzetességei előrehaladott Parkinson-kórban a marosvásárhelyi neurológiai klinikák, *ORVOSI HETILAP*, Vol. 160, No 17, 2019, pp. 662–669.

Tamás Vajda, Rácz Attila, Orbán-Kis Károly, Viorelia Adelina Constantin, Ligia Ariana Bancu, Dan Georgescu, János Szederjesi, István Mihály, Ana-Mária Fárr, Krisztina Kelemen, Szász József Attila, Szabolcs Szatmári, Profile Of Patients With Advanced Parkinson's disease Suitable For Device-Aided Therapies: Restrospective Data Of A Large Cohort Of Romanian Patients, *Neuropsychiatric Disease and Treatment*, Vol. 2019:15, 2019, pp. 3187–3195.

Szilágyi László, Lefkovits Szidónia, Szilágyi Sándor Mikós, Self-tuning possibilistic c-means clustering models, *INTERNATIONAL JOURNAL OF UNCERTAINTY FUZZINESS AND KNOWLEDGE-BASED SYSTEMS*, Vol. 27, No Suppl 1, 2019, pp. 143–159.

Haller Piroska, Márton Lőrinc, Szántó Zoltán, Sándor Hunor, Béla Genge, Cyber attack detection and mitigation: Software Defined Survivable Industrial Control Systems, *International Journal of Critical Infrastructure Protection*, Vol. 25, 2019, pp. 152–168.

Márton Lőrinc, Fehér Áron, Pituk Mihaly, Approximation of a Linear Autonomous Differential Equation with Small Delay, *Symmetry-Basel*, Vol. 11, No 10, 2019, pp. 1299–1300.



Aneza 1.4 Cărți (capitole de cărți) științifice la edituri internaționale

Cărți:

2022

Bakó László, *Sisteme inteligente realizate cu circuite reconfigurabile*, Editura Risoprint, Cluj-Napoca, 2022, pag. 180, ISBN 978-973-53-2868-9

2020

Szekely Gyula, Turos László-Zsolt, Villamos, elektronikus és virtuális mérések, Scientia, Kolozsvár, 2020, pag. 394, ISBN 978-606-975-036-0

Márton Lőrinc, Fehér Áron, *Irányítástechnika. Laboratóriumi útmutató*, Scientia, Kolozsvár, 2020

2019

Brassai Sándor Tihamér, *Neurális hálózatok és fuzzy logika*, Scientia, Kolozsvár, 2019, pag. 304, ISBN 978-606-975-021-6

Bakó László, Hajdú Szabolcs, *A processzortervezés alapelvei – Laborgyakorlati útmutató*, Editura Risoprint, Cluj-Napoca, 2022, pag. 70, ISBN 978-973-53-2867-2

Domokos József, Papp Sándor, *Analóg elektronika laboratóriumi útmutató*, Scientia, Cluj-Napoca, 2019, pag. 104, ISBN 978-606-975-022-3

Capitol de carte:

2019

Márton Lőrinc, *Passive Bilateral Teleoperation with Safety Considerations*. In: Paolo Barattini, Federico Vicentini, Gurvinder Singh Virk, Tamas Haidegger (szerk.): *Human-Robot Interaction: Safety, Standardization, and Benchmarking*, Boca Raton, Florida, USA, CRC Press, 2019, pp. 171–186., ISBN 9781138626751



Anexa 2.1. Lucrări științifice (tehnice) publicate în reviste de specialitate fără cotație ISI

2022

Győrfi Ágnes, Szilágyi László, Kovács Levente, A two-stage U-net approach to brain tumor segmentation from multi-spectral MRI records, *Acta Universitatis Sapientiae, Informatica*, Vol. 14, No 2, 2022, pp. 223–247., EBSCO

Ferencz Janos, Kelemen András, Imecs Mária, Optimal Power Sharing Control of the Hybrid Energy Storage System of an Electrical Vehicle Along a Standard Driving Cycle, *Acta Universitatis Sapientiae, Electrical and Mechanical Engineering*, Vol. 14, No 1, 2022, pp. 50–64., EBSCO

Lefkovits László, Lefkovits Szidónia, U-Net architecture variants for brain tumor segmentation of histogram corrected images, *Acta Universitatis Sapientiae, Informatica*, Vol. 14, No 1, 2022, pp. 49–74., SCOPUS

Molnár László, Módy István, Sophia Vrontou, Alexis Bédécarrats, Xiaofei Wei, Morikeoluwa Ayodeji, Attila Brassai, Altered brain rhythms and behavior in the accelerated ovarian failure mouse model of human menopause, *Brain Communications*, Vol. <https://doi.org/10.1093/braincomms/fcac166>, 2022, ISSN 2632-1297, pp. 1–22., UGC CARE, ESCI, DOAJ, PubMed

2021

Frank Callaly, László Bakó, Fearghal Morgan, Ian Gallivan, Arthur Beretta, Joseph Clancy, Frédéric Rousseau, Roshan George, RISC-V Online Tutor, *18th International Conference on Remote Engineering and Virtual Instrumentation*, Vol. 2021/2, 2021, pp. 316–328., Springer

Dávid László, György Katalin, Theoretical Study of the Unconstrained and Constrained Nonlinear Optimal Discrete Time State Feedback Control, *Acta Universitatis Sapientiae, Electrical and Mechanical Engineering*, Vol. 13, No 13, 2021, pp. 68–81., EBSCO

Kelemen András, Zsigmond Andor, Implementation of Grid Synchronization Methods on a Real Time Development System, *Acta Universitatis Sapientiae, Electrical and Mechanical Engineering*, Vol. 13, No 1, 2021, pp. 52–67., EBSCO

Ferencz Janos, Kelemen András, Particle Swarm Optimization of a Hybrid Energy Storage System, *Acta Universitatis Sapientiae, Electrical and Mechanical Engineering*, Vol. 13, No 1, 2021, pp. 82–100., EBSCO

2020



Lefkovits László, Szilágyi László, Iclănzan David, A review on suppressed fuzzy c-means clustering models, *Acta Universitatis Sapientiae, Informatica*, Vol. 12, No 2, 2020, pp. 302–324., Scopus

Kelemen András, Madarász Róbert Rossi, Kádár Péter, Modeling reactive magnetron sputtering: a survey of different modeling approaches, *Acta Universitatis Sapientiae*, Vol. 12, No 1, 2020, pp. 112–136., EBSCO

2019

Borsos Bálint, Szilágyi László, Iclănzan David, Nagy László, Low and high grade glioma segmentation in multispectral brain MRI data, *Acta Universitatis Sapientiae, Informatica*, Vol. 11, No 1, 2019, pp. 65–79., DeGruyter

Borsos Bálint, Szilágyi László, Iclănzan David, Nagy László, Automatic detection of hard and soft exudates from retinal fundus images, *Acta Universitatis Sapientiae, Informatica*, Vol. 11, No 1, 2019, pp. 65–79., DeGruyter



Anexa 2.4 Lucrări științifice (tehnice) publicate în alte reviste științifice

2021

Ferencz Janos, Kelemen András, Imecs Mária, Villamos jármű hibrid energiatároló rendszerének szabályozása, *Műszaki Tudományos Közlemények*, Vol. 14, No 1, 2021, pp. 77–88.

2020

Attila KOVÁCS, Tihamér BRASSAI Sándor, Intelligens ágens alapú humanoid robot vezérlés: Intelligent agent based control of humanoid robot, *Energetika-Elektrotechnika–Számítástechnika és Oktatás Multi-konferencia*, Vol. XXI, 2020, ISSN 2734-6757, pp. 124–129.

2019

Márton Lőrinc, Fehér Áron, COMPARISON OF THE APPROXIMATION METHODS FOR TIME-DELAY SYSTEMS: APPLICATION TO MULTI-AGENT SYSTEMS, *Hungarian Journal of Industry and Chemistry*, Vol. 1, No 47, 2019, pp. 71–77.



Anexa 2.2 Lucrări științifice prezentate la conferințe cu comitet de program

2023

Szilágyi László, Kovács Levente, Naghi Mirtill Boglárka, A review on advanced c-means clustering models based on fuzzy logic. In: Szakál Anikó (szerk.): *21st IFAC World Symposium on Applied Machine Intelligence and Informatics*, Herlany, IEEE, 2023, pp. 293–298.

Szilágyi László, Kovács Levente, Dénes-Fazakas Lehel, Eigner György, Siket Máté, Investigation of reward functions for controlling blood glucose level using reinforcement learning. In: Szakál Anikó (szerk.): *17th IEEE International Symposium on Applied Computational Intelligence and Informatics*, Temesvár, IEEE, 2023, pp. 387–392.

Szilágyi László, Kovács Levente, Dénes-Fazakas Lehel, Eigner György, Two U-net Architectures for Infant Brain Tissue Segmentation from Multi-Spectral MRI Data. In: IFAC Publishing Team (szerk.): *22nd IFAC World Congress*, Yokohama, Elsevier, 2023, pp. 1–6.

Szilágyi László, Kovács Levente, Naghi Mirtill Boglárka, A self-tuning version for the possibilistic fuzzy c-means clustering algorithm. In: IEEE Publishing Team (szerk.): *IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)*, Incheon, IEEE, 2023, pp. 1–6.

Szilágyi László, Kovács Levente, Dénes-Fazakas Lehel, Eigner György, A Modified VGG Architecture for Brain Tumor Classification. In: IEEE Publishing Team (szerk.): *IEEE Conference on Systems. Man and Cybernetics*, Honolulu, IEEE, 2023, pp. 1–6.

Györfi Ágnes, Szilágyi László, Kovács Levente, Brain Tumor Segmentation from Multi-Spectral MRI Records Using a U-Net Cascade Architecture. In: IEEE Publishing Team (szerk.): *IEEE Conference on Systems. Man and Cybernetics*, Honolulu, IEEE, 2023, pp. 1–6.

2022

Szilágyi László, Dénes-Fazakas Lehel, Eigner György, Separation of 6-month infant brain tissues from multi-spectral MRI records using a U-net neural network architecture. In: Szakál Anikó (szerk.): *10th Jubilee IEEE International Conference on Computational Cybernetics and Cyber-Medical Systems*, Reykjavík, IEEE, 2022, pp. 77–82.

Györfi Ágnes, Szilágyi László, Kovács Levente, Dénes-Fazakas Lehel, Csaholczi Szabolcs, Eigner György, Köble Andrea, Pisak-Lukáts Ioan Marius, Olga Shvets, Effect on spectral resolution on the segmentation quality of magnetic resonance imaging data. In: Szakál Anikó (szerk.): *26th IEEE International Conference on Intelligent Engineering Systems*, Chania, IEEE, 2022, pp. 53–58.

Szilágyi László, Kovács Levente, Dénes-Fazakas Lehel, Eigner György, Siket Máté, Kertész Gábor, Control of Type 1 Diabetes Mellitus using direct reinforcement learning based controller. In: IEEE Publishing Team (szerk.): *IEEE Conference on Systems, Man, and Cybernetics*, Prága,



IEEE, 2022, pp. 1512–1517.

Márton Lőrinc, Wijaya Kurniawan, Katalin Hangos, Parameter fault diagnosis in heat exchange networks with distributed time delay. In: IFAC Publishing Team (szerk.): *4th IFAC Workshop on Thermodynamics Foundations of Mathematical Systems Theory*, Montreal, Canada, Elsevier, 2022, pp. 39–44.

Lőrinc Márton, Zoltán Szántó, Áron Fehér, Adrienn Deák, Smartphone-controlled industrial robots: Design and user performance evaluation. In: IEEE Publishing Team (szerk.): *IEEE 22nd International Symposium on Computational Intelligence and Informatics and 8th IEEE International Conference on Recent Achievements in Mechatronics, Automation, Computer Science and Robotics*, Tîrgu Mures, Romania and Budapest, Hungary, IEEE, 2022, pp. 83–88.

Lőrinc Márton, Wijaya Kurniawan, Katalin Hangos, Parameter fault estimation in distributed heating/cooling systems. In: ACM Publishing Team (szerk.): *7th International Conference on Sustainable Information Engineering and Technology*, Malang, Indonesia, ACM - Association for Computing Machinery, 2022, pp. 111–118.

2021

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2020

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2019

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Anexa 3.1 Membri (incluzând statutul de recenzor) în colectivele de redacție ale unor reviste

1. Márton Lőrinc, IEEE Trans. Control Systems Technology, IEEE Trans. Industrial Electronics, IEEE Trans. Automatic Control, International Journal of Control, Elsevier Mechatronics, IEEE Trans. Mechatronics Elsevier Control Engineering Practice, IEEE Robotics and Automation Letters, IEEE Trans. Haptics (9 prezențe)
2. Szilágyi László, IEEE Transactions on Image Processing, IEEE Signal Processing Letters, IEEE Access, Information Sciences, Pattern Recognition, Pattern Recognition Letters, Computer Methods and Programs in Biomedicine, Computers in Biology and Medicine, Computer Vision and Image Understanding, Biomedical Signal Processing and Control, Medical Engineering and Physics, Medical and Biological Engineering and Computing, Expert Systems with Applications, Digital Signal Processing, Pattern Analysis and Applications, Control Engineering Practice, Advances in Data Analysis and Classification, PloS One (18 prezențe)
3. Brassai Sándor Tihamér, Villamosmérnöki Tudományok
4. Szabó László Zsolt, Infocommunications Journal

Anexa 3.3 Premii internaționale obținute printr-un proces de selecție

1. Domokos József, decembrie 2019 – premiu de excelență al OTDT pentru organizarea conferințelor cercurilor studențești.

Anexa 3.5 Conducători de doctorat

1. Szilágyi László
https://doktori.hu/index.php?menuid=192&lang=HU&sz_ID=10599
2. Márton Lőrinc
https://doktori.hu/index.php?menuid=192&sz_ID=24058&lang=EN
3. Domokos József
https://doktori.hu/index.php?menuid=192&lang=HU&sz_ID=35891



Anexa 4. Granturi de cercetare

2023

Titlu grant: *Mesterséges intelligencia, alternatív valóságok és rádiófrekvenciás eljárások védelmi célú alkalmazása (Aplicarea inteligenței artificiale, realității virtuale și comunicații radio pentru securitate)*, Numar grant: Tématerületi Kiválósági Program 2021TKP2021-NVA-16, nr. contract. NKE/5143/2022, Director proiect: Németh András, din Partea Universității Sapientia: **Brassai Sándor Tihamér** Membrii: Gábor Szabolcs László, Hammas Attila masterand, An universitar: 2022-2023 Mod de finanțare: Program Financed from the NRD Fund. Valoare: N/A

Titlu grant: *Segmentarea imaginilor medicale cu rețele neuronale transparente*, Numar (cod) grant: 21/7/12.07.2022, Director proiect: **Szilágyi László**, proiect: **Lefkovits László, Iclanzan David** Andrei, Jánosi-Rancz Katalin Tünde, Frigy Attila, **Győrfi Ágnes**, Csaholczi Szabolcs, Dénes-Fazakas Lehel, Pisak-Lukáts Ioan Marius, Rigmányi Zsombor, Babos Dávid, An universitar: 2022/05 – 2023/10, Mod de finantare KPI (Institutul Programelor de Cercetare), Valoare: 49400 RON

2022

Titul grant: *Managementul în timp real al informațiilor cu privire la vulnerabilitățile infrastructurilor informatice critice și oferirea de suport la evaluarea riscului – partea I*, Contract SZTAKI nr. 457/2022.05.23, Director: Conf.dr.ing. **Domokos József**, membrii: asist.ing. **Ferencz Katalin**, 2022 iunie-2023 februarie, Finanțare: Institute For Computer Science And Control HU, Valoare: 44100 RON

Titul grant: *Hybrid modelling of Power Electronic Converters (Teljesítményelektronikai konverterek hibrid modellezése, Modelarea hibridă a convertoarelor electrice de putere)* Director: **Dr. Kutasi Dénes Nimród**, Finațare: Domus Senior Magyar Tudományos Akadémia, HU Grant: 1944/35/2021/HTMT 2021, Valoare: 4500 RON

Titul grant: *Nemlineáris dinamikus hálózatok korszerű irányítási módszerei (Controlul avansat al rețelelor dinamice)*, Director: **Márton Lőrinc**, , Finațare: Domus Senior Magyar Tudományos Akadémia, HU , Grant: 1944/35/2021/HTMT 2021, , Valoare: 3150 RON

2021

Titul grant: *Managementul în timp real al informațiilor cu privire la vulnerabilitățile infrastructurilor informatice critice și oferirea de suport la evaluarea riscului – partea I*, Contract SZTAKI nr. 180/29.04.2021, Director: **Conf. dr. ing. Domokos József**, membrii: **asist.ing. Ferencz Katalin**, 2021 aprilie-2021 decembrie, Finanțare: Institute For Computer Science And Control HU, Valoare: 52000 RON

Titul grant: *Hibaizoláció Hálózati Irányítási Rendszerekben (Izolarea erorilor în sisteme de control*



implementate pe rețea), Director: **Márton Lőrinc**, Finațare: Domus Senior,
Magyar Tudományos Akadémia, HU , Grant: 1933/16/2021/HTMT, Valoare: 3150 RON

2020

Titul grant: *Migrációval csatolt biológiai hálózatok modellezése és irányítása (Modelarea și controlul sistemelor biologice conectate prin migrație)* Director: **Márton Lőrinc**, Finațare: Domus Senior, Magyar Tudományos Akadémia, HU , Grant: 1888/16/2020/HTMT, Valoare: 6300 RON

Brassai Sándor Tihamér (Conducător de proiect), *NEURÁLIS HÁLÓ KERETRENDSZER FPGA-RA / Framework for Implementation of Neural Networks on FPGA. / Framework pentru implementarea rețelelor neuronale pe circuite FPGA*, Accenture, 2020/02–2020/11, Valoare: 4000 RON

Márton Lőrinc (Conducător de proiect), *Cybersecurity în sisteme de comunicații industriale și robotice*, Accenture Industrial Software, 2020/02–2021/07, Valoare: 4000 RON

Kutasi Dénes Nimród (Conducător de proiect), *Home Automation PLC / Lakásautomatizálás PLC / PLC pentru automatizarea locuinței*, Accenture Industrial Software, 2020/02–2021/03, Valoare: 4000 RON

2019

Molnár László (Conducător de proiect), *Analysis, signal processing and data mining of the long term local field potential recordings from control and various neurological and psychiatric disorder model mice, carried out in Dr Mody's (project pi) laboratory at UCLA (1580 P XA968) / carried out in Dr Mody's (project pi) laboratory at UCLA (1580 P XA968)*, UCLA (University of California, Los Angeles), 2019/08–2022/08, 130 617 RON

Brassai Sándor Tihamér (Conducător de proiect), *Intelligent Humanoid Robot HuHGo / Intelligens humanoid robot HuGo / Robot umanoid inteligent HuGo*, Accenture, 2019/02–2019/11, 4000 RON

Szilágyi László (Conducător de proiect), *Multi-atlas based segmentation of medical images for diagnostics and therapy planning / Orvosi képek diagnosztikai és terápiás célú szegmentálása multi-atlasz által megsegített eljárással / Segmentarea imaginilor medicale bazată pe metode multi-atlas, pentru diagnosticare și terapeutică*, KPI, 2019/05–2021/05, 48 000 RON

08.11.2023.

Prof. Dr. Ing. Márton Lőrinc
director executiv