

Curriculum vitae

Informații personale

Nume/Prenume Bakó, László
Telefon
E-mail lbako@ms.sapientia.ro
Cetățenia
Stare civilă
Data și locul nașterii

Funcția și locul de muncă (universitatea, facultatea, catedra) lector universitar, Fundația Sapientia Universitatea Sapientia, Facultatea de Științe Inginerești și Umaniste Tg-Mureș, Catedra de Inginerie Electrică

Educație și formare

- **Doctorat** la Universitatea Transilvania din Brașov, Facultatea de Inginerie Electrică și Știința Calculatoarelor, Domeniul fundamental : Științe Inginerești, Domeniul: Inginerie Electronică și Telecomunicații, Tema tezei de doctorat: Sisteme Adaptive cu Rețele Neurale Artificiale Neuromorfe. Realizări cu Dispozitive Hardware Reconfigurabile, Conducător științific: Prof.dr.ing. Iuliu SZEKELY, 2010.
- **Masterat**, Sisteme automate avansate de conducere a proceselor industriale și energetice, Universitatea "Petru Maior", Târgu Mureș, promoția 2001
- **Inginer** diplomat în profilul știința sistemelor și a calculatoarelor, specializarea Automatică și Informatică Industrială, Universitatea "Petru Maior", Târgu Mureș, promoția 2000

Experiența profesională

2014-2015 Cercetător postdoctoral la Universitatea „Petru Maior” din Tîrgu-Mureș în cadrul proiectului POSDRU/159/1.5/S/133652

2012-2013 Cercetător științific cu parte de normă la Universitatea Tehnică din Cluj-Napoca

2006-prezent Fundația Sapientia Universitatea Sapientia, Facultatea de Științe Inginerești și Umaniste Tg-Mures, Catedra de Inginerie Electrică,
lector universitar

2004-2006 Fundația Sapientia Universitatea Sapientia, Facultatea de Științe Inginerești și Umaniste Tg-Mures, Catedra de Inginerie Electrică,
asistent universitar

2002-2004 Fundația Sapientia Universitatea Sapientia, Facultatea de Științe Inginerești și Umaniste Tg-Mures, Catedra de Inginerie Electrică,
preparator universitar

2001-2002 Fundația Sapientia Universitatea Sapientia, Facultatea de Științe Inginerești și Umaniste Tg-Mures, Catedra de Inginerie Electrică,
preparator universitar (plata cu ora)

Alte funcții deținute (nedidactice)

2001-2002 AAGES S.R.L. Tg-Mureș, inginer proiectant

2019- Elitengin Labs SRL, Tg-Mureș, Adminsitrator, manager proiect informatic

Limbi străine cunoscute

Engleză: avansat scris și vorbit (Cambridge Certificate in Advanced English)

Germană: mediu scris, începător vorbit

Maghiară: limba maternă

Activitatea didactică (cursuri, seminarii, lucrări practice conduse)

1. Analiza asistată de calculator a circuitelor electronice, curs, 2010-2013
2. Sisteme periferice și interfețe, curs și laborator, 2005-2018
3. Sisteme SCADA și comunicații industriale, curs și laborator, 2008-2018
4. Sisteme SCADA și comunicații industriale, laborator, 2004-2007
5. Arhitectura calculatoarelor, curs, 2007-2018
6. Circuite logice reconfigurabile, curs și laborator, 2006
7. Microcontrolere II, curs și laborator, 2006
8. Arhitectura calculatoarelor, laborator, 2003-2018
9. Teoria sistemelor, laborator, 2003
10. Bazele informaticii, laborator, 2001-2004
11. Introducere în știința sistemelor de calcul, laborator, 2002-2003
12. Electronică digitală II, laborator, 2010-2012

Domeniul de cercetare

Inteligență artificială, Implementarea rețelelor neuronale pe sisteme digitale reconfigurabile, Arhitectura sistemelor de calcul cu microprocesoare

Membru în organizații științifice și profesionale

- Societatea Română de Automatică și Informatică Tehnică
- Societatea Tehnico Științifică Maghiară din Transilvania
- Member of the Society of Hungarian Scientists and Scholars

Data: 21. septembrie 2020.

LISTA LUCRĂRILOR ȘTIINȚIFICE

Numele și prenumele: BAKÓ László

A. Teza de doctorat.

Universitatea Transilvania din Brașov,
Facultatea de Inginerie Electrică și Știința Calculatoarelor,
Domeniul fundamental: Științe Inginerești,
Domeniul: Inginerie Electronică și Telecomunicații,
Titlul tezei de doctorat: "Sisteme Adaptive cu Rețele Neuronale Artificiale Neuromorfe.
Realizări cu Dispozitive Hardware Reconfigurabile",
Conducător științific: Prof. dr. ing. Iuliu SZÉKELY

B. Lista lucrări științifice publicate

B1. Lucrări științifice publicate în reviste cotate ISI

- 1) Bakó László. *Real-time classification of datasets with hardware embedded neuromorphic neural networks*, Briefings in Bioinformatics, Special Issue: Parallel and Ubiquitous Methods and Tools in Systems Biology: May 2010; Vol. 11, No. 3, p348-363, doi: 10.1093/bib/bbp066, Oxford University Press (**Impact Factor: 7.329**)

* Citări independente:

- în lucrări cotate ISI sau ISI proceedings:

- Cit. 1. Cawley, Seamus; Morgan, Fearghal; McGinley, Brian; Pande, Sandeep; McDaid, Liam; Harkin, Jim; , "The impact of neural model resolution on hardware Spiking Neural Network behaviour." *Signals and Systems Conference (ISSC 2010), IET Irish*, vol. no., pp.216-221, 23-24 June 2010
- Cit. 2. Mohammed, Ammar; Schlieb, Stefan; Matsuda, Satoshi; Nikola Kasabo. *SPAN: Spike Pattern Association Neuron for Learning Spatio-Temporal Sequences*. *International Journal of Neural Systems*. (August, 2011)
- Cit. 3. MA Nuno-Maganda, M Arias-Estrada, *A Hardware Architecture for Image Clustering Using Spiking Neural Networks*, *VLSI (ISVLSI)*, 2012. ieeexplore.ieee.org
- Cit. 4. Cawley, Seamus; Morgan, Fearghal; McGinley, Brian; Pande, Sandeep; McDaid, Liam; Carrillo, Snaidier and Harkin, Jim. 2011. *Hardware spiking neural network prototyping and application*. *Genetic Programming and Evolvable Machines* 12, 3 (September 2011), 257-280. DOI=10.1007/s10710-011-9130-9 <http://dx.doi.org/10.1007/s10710-011-9130-9>
- Cit. 5. Nuno-Maganda, MA; Arias-Estrada, M; Torres-Huitzil, C; Aviles-Arriaga, HH; Hernandez-Mier, Y; Morales-Sandoval, M, *A Hardware Architecture for Image Clustering Using Spiking Neural Networks*. *IEEE COMPUTER SOCIETY ANNUAL SYMPOSIUM ON VLSI (ISVLSI)*, 261-266: 10.1109/ISVLSI.2012.46 2012.
- Cit. 6. Subramaniam, A.; Cantley, K.D.; Bersuiker, G.; Gilmer, D.; Vogel, E.M., "Spike-Timing-Dependent Plasticity Using Biologically Realistic Action Potentials and Low-Temperature Materials," *Nanotechnology*, *IEEE Transactions on*, vol.12, no.3, pp.450,459, May 2013, doi: 10.1109/TNANO.2013.2256366
- Cit. 7. Rumbell, T.; Denham, S.L.; Wennekers, T. "A Spiking Self-Organizing Map Combining STDP, Oscillations, and Continuous Learning," *Neural Networks and Learning Systems*, *IEEE Transactions on*, vol.25, no.5, pp.894,907, May 2014 doi: 10.1109/TNNLS.2013.2283140
- Cit. 8. C. D. Schuman, J. S. Plank, A. Disney and J. Reynolds. "An evolutionary optimization framework for neural networks and neuromorphic architectures." 2016 *International Joint Conference on Neural Networks (IJCNN)*, Vancouver, BC, 2016. pp. 145-154. doi: 10.1109/IJCNN.2016.7727192

- Cit. 9. Catherine D. Schuman, Thomas E. Potok, Robert M. Patton, J. Douglas Birdwell, Mark E. Dean, Garrett S. Rose, James S. Plank, *A Survey of Neuromorphic Computing and Neural Networks in Hardware*, *Neural and Evolutionary Computing*, CoRR 1705.06963, 2017.
- Cit. 10. Taherkhani, Aboozar, et al. "A Supervised Learning Algorithm for Learning Precise Timing of Multiple Spikes in Multilayer Spiking Neural Networks." *IEEE Transactions on Neural Networks and Learning Systems* (2018).
- Cit. 11. Tang, Wei-Hua, Ito, Wen-Hsien, Chen, Yenming J., "Data assimilation and multisource decision-making in systems biology based on unobtrusive Internet-of-Things devices", *BioMedical Engineering OnLine*, volume 17, Article number: 147 (2018)
- Arena, P., Cali, M., Patané, L. et al., "A CNN-based neuromorphic model for classification and decision control", *Nonlinear Dynamics*, Volume 95, Issue 3, pp 1999–2017, (2019)

- în lucrări indexate în BDI:

- Cit. 12. Wang, Pu; Weise, Thomas; Chiong, Raymond, *Novel evolutionary algorithms for supervised classification problems: an experimental study*, *Evolutionary Intelligence*, 2011, Springer Berlin / Heidelberg, ISSN 1864-5909
- Cit. 13. Seamus Cawley, Fearghal Morgan, Brian McGinley, Sandeep Pande, Liam McDaid, Snaidar Carrillo, Jim Harkin, *Hardware spiking neural network prototyping and application*, *Genetic Programming and Evolvable Machines*, September 2011, Volume 12, Issue 3, pp 257-280, 2011 - Springer
- Cit. 14. Jing, Gu; Liu, Lu-yang; Yu, Xiao-yang, *The Research of Multivariable Fuzzy Neural Network Controller based on FPGA*, *Journal of Harbin University of Science and Technology*, Vol 16, No. 2., April 2011, China.
- Cit. 15. Rumbell, Timothy, *Self Organisation and Hierarchical Concept Representation in Networks of Spiking Neurons*, University of Plymouth, UK, Phd Thesis, 2013.
- Cit. 16. Cit. 12. Asmaa Ourdighi and Abdelkader Benyettou, *An Efficient Spiking Neural Network Approach based on Spike Response Model for Breast Cancer Diagnostic*, *The International Arab Journal of Information Technology*, Vol.13, No.3, 2014.
- Cit. 17. A Ourdighi, A Benyettou, "An Efficient Spiking Neural Network Approach based on Spike Response Model for Breast Cancer Diagnostic", *The International Arab Journal of Information Technology* Vol. 13, No. 6B, 2016

- 2) Brassai Sándor Tihamér, **Bakó László**, *Hardware Implementation of CMAC Type Neural Network on FPGA for Command Surface Approximation*, *Acta Polytechnica Hungarica - Journal of Applied Sciences at Budapest Tech Hungary*, Vol. 4, No. 3, 2007, pp. 5-16, ISSN 17858860, MATARKA, IEEE.

* *Independent citations:*

- citations in ISI indexed journals or in CPCI indexed proceedings:

- Cit. 18. Min-Kuang Wu; Widodo, S., *Single input cerebellar model articulation controller (CMAC) based maximum power point tracking for photovoltaic system*, *Computer Communication Control and Automation (3CA)*, 2010 International Symposium on, ISBN: 978-1-4244-5565-2, pp. 439 – 442
- Cit. 19. A. Taghavi-pour, M.S. Founani, M. Boroushaki, *Implementation of an optimal control strategy for a hydraulic hybrid vehicle using CMAC and RBF networks*, *Scientia Iranica*, Available online 13 March 2012, ISSN 1026-3098, 10.1016/j.scient.2012.02.019.
- Cit. 20. Bo Yang; Ran Bao; Huatao Han, "Robust Hybrid Control Based on PD and Novel CMAC With Improved Architecture and Learning Scheme for Electric Load Simulator," *Industrial Electronics, IEEE Transactions on*, vol.61, no.10, pp.5271,5279, Oct. 2014 doi: 10.1109/TIE.2014.2301717

- citations in journals and proceedings indexed by other international databases:

- Cit. 21. Slamet Widodo, *Microcontroller Implementation of Low-Cost Maximum Power Point Tracking Methods for Photovoltaic System*, 2009, Master's Thesis, Southern Taiwan University, Department of Mechanical Engineering.
- Cit. 22. S.P. Joy Vasantha Rani, K. Aruna Prabha. (2010) "Stochastic logic computation based RBFNN with adaptive hidden layer structure", *Journal of Engineering, Design and Technology*, Vol. 8 Iss: 2, pp.206 – 220.
- Cit. 23. Mehran S. Razzaghi, Alireza Mohebbi, *Predicting the Seismic Performance of Cylindrical Steel Tanks Using Artificial Neural Networks (ANN)*, *Acta Polytechnica Hungarica*, Vol. 8, No. 2, 2011.
- Cit. 24. Khan, H.A. and Yan, A.C.M. and Xiao, Y. and Sreeram, V. and Lu, H.H.C., *An implementation of novel CMAC algorithm for very short term load forecasting*, *Journal of Ambient Intelligence and*

Humanized Computing. Springer-Verlag, p. 1-11, issn 1868-5137, 2012, doi- 10.1007/s12652-012-0157-4

Cit. 25. Belfiore, N. P., & Rudas, I. J. (2014, November). Applications of computational intelligence to mechanical engineering. In Computational Intelligence and Informatics (CINTI), 2014 IEEE 15th International Symposium on (pp. 351-368). IEEE.

B2. Lucrări științifice publicate în reviste indexate în baze de date internaționale

- 1) **Bakó L.**, Brassai, S.T., “Embedded neural controllers based on spiking neuron models,” Pollack Periodica, An International Journal for Engineering and Information Sciences, DOI: 10.1556/Pollack.4.2009.3.13, Vol. 4, No. 3, pp. 143–154 (December 2009), Akadémiai Kiadó, Budapest, Hungary, ISSN 1788-3911, SJR — SCImago Journal & Country Rank: 0,031.

Cit. 26. Pintér Ádám, Schmuck Balázs Szénási Sándor; “Short text evaluation with neural network”, Pollack Periodica, Volume 13, Issue 3, December 2018.

- 2) Brassai, S.T., **Bakó L.**, “Visual Trajectory Control of a Mobile Robot Using FPGA Implemented Neural Network”, Pollack Periodica, An International Journal for Engineering and Information Sciences, Pollack.4.2009.3.12, Vol. 4, No. 3, pp. 129–142 (December 2009), Akadémiai Kiadó, Budapest, Hungary, ISSN 1788-3911, SJR — SCImago Journal & Country Rank: 0,031.

Cit. 27. Kovács Bence, Path planning of autonomous service robots, Pattantyús-Ábrahám Géza Gépészeti Tudományok Doktori Iskola. (2017.), Ph.D. Dissertation, BME, Budapest.

- 3) **Bakó László**, Brassai Sándor Tihámér, Spiking neural networks built into FPGAs: Fully parallel implementations, WSEAS Transactions on Circuits and Systems, Issue 3, Volume 5, March 2006, pp346-353, ISSN 1109-2734, British Library Direct, SJR — SCImago Journal & Country Rank: 0,033.

** Independent citations:*

- citations in journals and proceedings indexed by other international databases:

Cit. 28. Yutaka Maeda, Yoshinori Fukuda, and Takashi Matsuoka. 2008. Pulse density recurrent neural network systems with learning capability using FPGA. WSEAS Trans. Cir. and Sys. 7, 5 (May 2008), 321-330.

Cit. 29. Perez-Peña, Fernando; Morgado-Estevez, Arturo; Linares-Barranco, Alejandro; Jimenez-Fernandez, Angel; Gomez-Rodriguez, Francisco; Jimenez-Moreno, Gabriel; Lopez-Coronado, Juan; Neuro-Inspired Spike-Based Motion: From Dynamic Vision Sensor to Robot Motor Open-Loop Control through Spike-VITE; 2013, Sensors, 1424-8220, Vol. 13, Nr. 11, pp. 15805-15832, doi:10.3390/s131115805, http://www.mdpi.com/1424-8220/13/11/15805.

Cit. 30. Morgado Estévez, Arturo, Gabriel Jiménez Moreno, Juan López Coronado, Fernando Pérez Peña, Ángel Francisco Jiménez Fernández, Francisco de Asís Gómez Rodríguez, and Alejandro Linares Barranco. "Neuro-Inspired Spike-Based Motion: From Dynamic Vision Sensor to Robot Motor Open-Loop Control through Spike-VITE." (2013). Sensors 2013. 13, 15805-15832; doi:10.3390/s131115805S.

- 4) T. Brassai, **L. Bakó**, L. Losonczy Assistive Technologies for Visually Impaired People, Acta Universitatis Sapientiae, Electrical and Mechanical Engineering, 3 (2011) pp. 39–50 (EBSCO databases).

Cit. 31. Periša, Marko, Dragan Peraković, and Slavko Šarić. "Conceptual Model of Providing Traffic Navigation Services to Visually Impaired Persons." PROMET-Traffic&Transportation 26.3 (2014).

Cit. 32. MARKO PERIŠA. Ph D., Ph D. DRAGAN PERAKOVIĆ, and Ph D. SLAVKO ŠARIĆ. "CONCEPTUAL MODEL OF PROVIDING TRAFFIC NAVIGATION SERVICES TO VISUALLY IMPAIRED PERSONS." crossings 8.9: 10.

Cit. 33. Periša, Marko; Jovović, Ivan; Forenbacher, Ivan. A conceptual applicative solution for helping people with reduced mobility // RCITD 2014 Proceedings in Research Conference In Technical Disciplines / Ing. Michal Mokryš; Ing. Stefan Badura, Ph.D., editor(s). Zilina: EDIS - Publishing

- Institution of the University of Zilina, 2014. 82-85 (lecture.international peer-review,published,scientific).
- Cit. 34. Adagale, Vaishali, and Sanjivani Mahajan. "Route Guidance System For Blind People Using GPS And GSM.", *Int. Journal of Electrical and Electronic Engineering and Telecommunications*, Vol. 4, No. 2, April 2015, ISSN 2319 – 2518, pp. 16-21. http://www.ijeetc.com/ijeetcadmin/upload/IJEETC_5524b75e51773.pdf
- Cit. 35. S. Umadevi, S. Sebija, "Electronic Assistive Aid For Blind And Visually Impaired", *International Journal of Engineering Trends and Technology (IJETT)* - Volume23 Number 5- May 2015, pp. 263-267, <http://www.ijettjournal.org/2015/volume-23/number-5-IJETT-V23P249.pdf>
- Cit. 36. Kamaludin, Muhammad Haziq, Nasrul Humaimi Mahmood, Abd Hamid Ahmad, Camallil Omar, and Masdinah Alauyah Md Yusof. "Sonar Assistive Device for Visually Impaired People." *Jurnal Teknologi* 73, no. 6 (2015).
- Cit. 37. Adagale, Vaishali, and Sanjivani Mahajan. "ROUTE GUIDANCE SYSTEM FOR BLIND PEOPLE USING GPS AND GSM." (2015).
- Cit. 38. Jesie, R. Sherline. "Advanced talking navigation cane for visually impaired using capacitive touch keypad." In *Circuit, Power and Computing Technologies (ICCPCT)*, 2015 International Conference on, pp. 1-5. IEEE, 2015.
- Cit. 39. Duarte, Karen, José Cecilio, Jorge Sá Silva, and Pedro Furtado. "Information and Assisted Navigation System for Blind People." *Proceedings of the 8th International Conference on Sensing Technology*, Sep. 2-4, 2014, Liverpool, UK, pp.470-473.
- Cit. 40. LAMAS, Amilton Costa; SOUZA, Rafael Isidro. Sistema de apoio à localização para deficientes visuais. *Extensio: Revista Eletrônica de Extensão, Florianópolis*. v. 13, n. 24, p. 37-48, dez. 2016. ISSN 1807-0221
- Cit. 41. Bhowmick, Alexy, and Shyamanta M. Hazarika. "An insight into assistive technology for the visually impaired and blind people: state-of-the-art and future trends." *Journal on Multimodal User Interfaces* 11.2 (2017): 149-172.
- Cit. 42. Zubov, Dmytro. "Building IoT With Arduino." *Emerging Trends and Applications of the Internet of Things*. IGI Global, 2017. 117-166.
- Cit. 43. Gopinath M. Raja MA, LabVIEW BASED BLIND PATH NAVIGATION SYSTEM USING GPS-A NOVEL APPLICATION, 46th ISTE Annual National Convention & National Conference 2017, Gulzar Group of Institutes, Ludhiana, Punjab-141401 (INDIA). *International Journal of Advance Research and Innovation (ISSN 2347 – 3258)*. (2017.)
- Cit. 44. Sain, Mohit. *Portable Monitoring and Navigation Control System for Helping Visually Impaired People*. Diss. Université d'Ottawa-University of Ottawa, PhD Thesis, 2017.
- Cit. 45. Ghazali, Nurul Fathiah, et al. "Wearable Device for Malaysian Ringgit Banknotes Recognition Based on Embedded Decision Tree Classifier." *Journal of Telecommunication, Electronic and Computer Engineering (JTEC)* 10.1 (2018): 129-137.
- Cit. 46. Chaturika Sewwandi Silva, Chaturika Sewwandi "Towards Intelligent Sensor Fusion based Visually Impaired Navigation: An Assistive Technology Framework", *International Conference on Emerging Trends in Artificial Intelligence (ICETAI 2015)*, Open University, Sri Lanka, December 2015.
- Cit. 47. Dmytro Zubov, "Building IoT With Arduino". Polytechnic University of San Luis Potosí, Mexico, Source Title: *Emerging Trends and Applications of the Internet of Things*, 2017. Pages: 50, DOI: 10.4018/978-1-5225-2437-3.ch005.

B3. Lucrări științifice publicate în reviste din străinătate (altele decât cele menționate anterior).

1. Bakó L., Székely I (2009). *Challenges for implementations of delay-coded neuromorphic neural networks on embedded digital hardware*. *Frontiers in Neuroinformatics*. Conference Abstract: 2nd INCF Congress of Neuroinformatics. DOI:10.3389/conf.neuro.11.2009.08.050. <http://frontiersin.org/neuroinformatics/>

B4. Lucrări științifice publicate în reviste din țară, recunoscute CNCSIS (altele decât cele din baze de date internaționale).

1. Bakó László, Székely Gyula (Iuliu), Brassai Sándor Tihamér, *Development of Advanced Neural Models. Software And Hardware Implementation*, Timișoara, Transaction on

- Electronics and communication, Scientific bulletin of the „Politehnica” University of Timișoara, 2004, p214-219, ISSN 15833380 (Cat. B+)
2. Brassai Sándor Tihamér, Dávid László, **Bakó László**, *Hardware Implementation of CMAC based artificial network with process control application*, Timișoara, Transaction on Electronics and communication, Scientific bulletin of the „Politehnica” University of Timișoara, 2004, p209-213, ISSN 1583-3380 (Cat. B+)
 3. **BAKÓ László**, *Implementarea încorporată a unei metode de extragere a fluxului optic din secvențe video*, Simpozionul Național Studiile Doctorale și Postdoctorale în Contextul Cercetării Interdisciplinare, Universitatea Petru Maior din Tirgu Mures, 19 MARTIE 2015, Petru Maior University Press, ISBN 978-606-581-134-8, editors Boldea, I. And Sigmirean, C., pp. 74-84.

B5. Lucrări științifice publicate în volumele manifestărilor științifice

1. **L. Bakó**, G. Csernách, L. Turos, I. Kiss and B. Csenteré, "Testing and analysis of battery wear characteristics," 2019 IEEE 19th International Symposium on Computational Intelligence and Informatics and 7th IEEE International Conference on Recent Achievements in Mechatronics, Automation, Computer Sciences and Robotics (CINTI-MACRo), Szeged, Hungary, 2019, pp. 000099-000104, doi: 10.1109/CINTI-MACRo49179.2019.9105178.
2. Bakó László, "SoC áramkörök alkalmazása a számítógép architektúrák oktatásában", Enelko-SzámOkt 2019, Timisoara, EMT Cluj-Napoca, 2019.
3. Fearghal Morgan, Declan O'Loughlin, Jeremy Audiger, Yohan Boyer, Niall Timlin-Canning, Krzysztof Kepa, Ian Gallivan, Frank Callaly, **László Bakó**, "viciLogic 2.0: Online learning and prototyping of digital systems using PYNQ-Z1/-Z2 SoCs", 29th International Symposium on Rapid System Prototyping (RSP), October 4-5, 2018, Torino, Italy (*in press by IEEEExplore*).
4. Aidan Boyd, Frank Callaly, Dáire Canavan, Declan O'loughlin, Jeremy Audiger, Yohan Boyer, Niall Timlin-Canning, **László Bakó**, Szabolcs Hajdú, Fearghal Morgan, "ICCapt: Online design capture and HDL generation, with PYNQ SoC prototyping in the cloud", 29th Irish Signals and Systems Conference (ISSC 2018), Belfast, 21st - 22nd June, 2018. (*in press by IEEEExplore*)
5. Dáire Canavan, Declan O'loughlin, Frank Callaly, Aidan Boyd, Jeremy Audiger, Yohan Boyer, Joan Espanol, Marion Bertrand, **László Bakó**, Szabolcs Hajdú, Fearghal Morgan, "Audio DSP remote hardware prototyping and console creation", 29th Irish Signals and Systems Conference (ISSC 2018), Belfast, 21st - 22nd June, 2018. (*in press by IEEEExplore*)
6. **Bakó, László**, Szabolcs Hajdú and Fearghal Morgan. 2017. Evaluation and Comparison of Low FPGA Footprint, Embedded Soft-Core Processors. MACRo 2015. 2(1): 23-30. Retrieved 13 Feb. 2018, from doi:10.1515/macro-2017-0003
7. Róbert Moni, **László Bakó**, Szabolcs Hajdú, Fearghal Morgan and Sándor Tihamér Brassai, "Embedded Real-time Implementation of a Computational Efficient Optical Flow Extraction Method for Intelligent Robot Control Applications", 24th Irish Conference on Artificial Intelligence and Cognitive Science, University College Dublin, September 20-21 2016. (http://aics2016.ucd.ie/papers/full/AICS_2016_paper_47.pdf)
8. **László BAKÓ**, Călin ENĂCHESCU, "Challenges in the embedded implementation optical flow computation", 2nd CommScie International Conference "Challenges for Sciences and Society in Digital Era", Iași, December 4th – 5th, 2015, PIM Press, ISBN 978-606-13-2892-5, pp. 12-16.

9. **Laszlo Bako**, Szabolcs Hajdu, Sandor-Tihamer Brassai, Fearghal Morgan, Calin Enachescu, Embedded Implementation of a Real-Time Motion Estimation Method in Video Sequences, *Procedia Technology*, Volume 22, 2016, Pages 897-904, ISSN 2212-0173, The 9th International Conference Interdisciplinarity in Engineering, INTER-ENG, 8-9 October 2015, "Petru Maior" University of Tîrgu-Mureş, Romania
Cit. 48. Aurelio Bermúdez-Francisco, Montero María T. López-Antonio, Fernández-Caballero José L. Sánchez. "Optimization of lateral interaction in accumulative computation on GPU-based platform", The Journal of Supercomputing, March 2019, Volume 75, Issue 3, pp 1670-1685.
10. **László Bakó**, "On the feasibility of low resource-cost embedded optical flow extraction implementations", HiPEAC Workshop on Building Partnership, BME Budapest, Hungary, June 2015, Invited Speaker.
11. **László Bakó**, Sándor-Tihamér Brassai and Călin Enăchescu, „Design and validation of a low resource-cost video data processing method for embedded implementation of optical flow extraction”, *Proceedings of the 6th International Carpathian Control Conference (ICCC)*, Szilvásvárad, Hungary, May 27-30, IEEE 978-1-4799-7370-5/15, 2015, pp.13-18.
12. Brassai, S. T., Hajdu, S., Tamas, T., & **Bakó, L.** (2015, May). Hardware implemented adaptive neuro fuzzy system. In *Carpathian Control Conference (ICCC), 2015 16th International* (pp. 58-63). IEEE.
Cit. 49. Al Azzawi, Ahmed Khazal Younis & Ercan, Tuncay. (2018). ANFIS Analysis of Wireless Sensor Data with FPGA. 2602-3563.
13. **László Bakó**, Sándor-Tihamér Brassai, Călin Enăchescu, "Embedded Implementation of a Resource-Efficient Optical Flow Extraction Method", *Proceedings of the 5th International Conference on Recent Achievements in Mechatronics, Automation, Computer Science and Robotics*, Sapientia University, Department Of Electrical Engineering, Department Of Mechanical Engineering, Tîrgu Mures, Romania, MACRo 2015. Volume 1, Issue 1, Pages 163–175, ISSN (Online) 2247-0948, DOI: 10.1515/macro-2015-0016, May 2015.
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14. L.F. Márton, S.T. Brassai, **L. Bakó**, L. Losonczi, "Detrended Fluctuation Analysis of EEG Signals" *Procedia Technology*, Elsevier, 2014, Volume 12, Pages 125–132.
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18. Brassai, S.T., **Bakó, L.**, Losonczi L. and Márton, L.F., "Parallel pipeline solution for hardware implementation of artificial neural networks with in circuit real time weight update", 8th International Conference on High-Performance and Embedded Architectures and Compilers (HiPEAC), 2nd Workshop on Design Tools and Architectures for Multi-Core Embedded Computing Platforms (DITAM'13), January 21-23, 2013, Berlin, Germany.
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38. **Bakó, L.**, „Partially Serialized Computation in Networks of Pulse-based Artificial Neurons”, 1st International Conference on Recent Achievements in Mechatronics, Automation, Computer Science and Robotics, MACRo 2009, Sapientia University, Department Of Electrical Engineering, Department Of Mechanical Engineering, March 20-21, 2009, Tîrgu Mureş, Romania , Abstract book, p19.
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47. **Bakó László**, Brassai Sándor Tihamér, *Hardware spiking neural networks: parallel implementations using FPGAs*, Proceedings of the 8th WSEAS Int. Conference on Automatic Control, Modeling and Simulation, Prague, Czech Republic, March 12-14, 2006 (pp261-266), ISBN 960-8457-42-4, ISSN 1790-5117.

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49. **Bakó László**, Brassai Sándor Tihamér, *Természetazonos felépítésű mesterséges neurális hálózatok hardware megvalósítása*, Cluj-Napoca, Számokt 2005 Kolozsvár, EMT, P219-230, ISBN: 973-7840-01-1
50. **Bakó László**, Brassai Sándor Tihamér, *Fejlett neuronmodellek szimulációja és megvalósítása*, Számokt 2004 – Cluj-Napoca, EMT, 2004, ISBN:973-86097-8-X, p98-107
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C. Contracte de cercetare

1. **Domus senior researcher mobility scholarship** at the Budapest University of Technology and Economics, Department of Measurement and Information Systems, funded by the Hungarian Academy of Sciences, for six weeks in 2018, 800 EUR.
2. Postdoctoral Research Scholarship, "Petru Maior" University of Tirgu-Mures, European Social Fund under the responsibility of the Managing Authority for the Sectoral Operational Programme for Human Resources Development, as part of the grant POSDRU/159/1.5/S/133652, 2014-2015 (18 months).
3. Research mobility, Host institution: Bio-Inspired and Reconfigurable Computing research group, Electrical & Electronic Engineering, College of Engineering and Informatics, National University of Ireland, Galway, Ireland, (<http://birc.nuigalway.ie/>), External stage coordinator: Dr. Fearghal Morgan B.Sc., Ph.D., Stage period: 30th of March-26th of April 2015.
4. **Domus senior researcher mobility scholarship** at the Budapest University of Technology and Economics, Department of Control Engineering and Information Technology, funded by the Hungarian Academy of Sciences, for six weeks in 2014, 800 EUR.
5. **Domus senior researcher mobility scholarship** at the Budapest University of Technology and Economics, Department of Control Engineering and Information Technology, funded by the Hungarian Academy of Sciences, for six weeks in 2013, 800 EUR.
6. **Research scholarship**, Hungarian Government, Ministry of Human Resources, 2012-2013, 1650 EUR.
7. Proiectarea și implementarea sistemelor încorporate în timp real cu arhitectură adaptivă, Institutul Programelor de Cercetare – Univ. Sapientia, **Director proiect**, 2013.

8. Eljárások és eszközök kutatása, fejlesztése és gyakorlati alkalmazása neuro-biológiai jelekre épülő rendszerek valós idejű szabályozásában, Conducător: Conf. dr. ing. Márton László-Ferenc, Institutul Programelor de Cercetare – Fund. Sapientia, *Membru*, 2011-2012
9. Sisteme adaptive cu rețele neurale artificiale neuromorfe. Realizări cu dispozitive hardware reconfigurabile, CNCSIS-UEFISCSU (Contract tip TD), *Director proiect*, 2008-2009
10. Implementarea sistemelor neuro-adaptive cu circuite reconfigurabile. Conducător: dr. ing. Brassai S.T., Institutul Programelor de Cercetare – Fund. Sapientia, *Membru*, 2008-2009
11. Implementarea rețelelor neurale cu codarea decalajelor impulsurilor, bazate pe modele neurale hibride de tip RBF-Spiking cu aplicare pentru probleme de clasificare de date, Fundația EuroTrans, *Director proiect*, 2008
12. Metode inteligente pentru prelucrarea digitală și interpretarea semnalelor EKG bazate pe analiza Wawelet. Conducător: Prof. dr. ing. Székely Iuliu, Institutul Programelor de Cercetare – Fund. Sapientia, *Membru*, 2005-2006
13. Optimizarea și aplicarea rețelelor neuronale artificiale neuromorfe în probleme de control Conducător: Prof. dr. ing. Székely Iuliu, Institutul Programelor de Cercetare – Fund. Sapientia, *Membru*, 2004-2005
14. Simularea și utilizarea rețelelor neuronale artificiale neuromorfe, Conducător: Prof. dr. ing. Székely Iuliu, Institutul Programelor de Cercetare – Fund. Sapientia, *Membru*, 2003-2004
15. Modelarea și simularea rețelelor neuronale artificiale neuromorfe, Conducător: Prof. dr. ing. Székely Iuliu, Institutul Programelor de Cercetare – Fund. Sapientia, *Membru*, 2002-2003
16. Obținerea și caracterizarea micro-structurală a depunerilor nanocompozite TiAlN în structura multistrat gradient de compoziție realizate prin pulverizarea reactivă în curent continuu tip magnetron, Conducător: Prof. dr. ing. Dávid László, Institutul Programelor de Cercetare – Fund. Sapientia, *Membru*, 2001-2002.

D. Premii, distincții.

Premiul “*The Best Presenter in Information Technology*” la Conferința The 4th International PhD, DLA Symposium, organizat de University of Pécs, Pollack Mihály Faculty of Engineering, Pécs, Ungaria, 20-21 Octombrie 2008.

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J. Citări independente

Numărul total de lucrări este 61 (32 ca prim autor), din care la 16 se cunosc un număr total de 88 citări independente (din care 30 în publicații cotate ISI și 53 în lucrări indexate în BDI).

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