

Curriculum vitae - Dávid László



Personal data:

Place and date of birth: Csíkszereda (M-Ciuc), Harghita County, Romania, 18 July 1956.

Parents: Dávid József and Mária (born Székely)

Family: wedded (Szász Anna), 3 children's (László, Anna, Réka)

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Position: Professor at the Sapientia Hungarian University of Transilvania, Faculty of Human and Technical Sciences, Rector of the University from 2007.

Training: dipl. electrical engineer, Computer Control System (Polytechnic University of Timișoara-1981), PhD (Transilvania University of Brașov-1997), PhD thesis: "Computer Control of the Electron Beam Processing Equipments", supervisor Prof. dr. Szentgyörgyi László

Main professional positions:

- 1979-1981 University assistant, Polytechnic University of Timișoara, Physics Department
- 1981-1985 Trainee engineer, engineer at the ISAMA Sepsiszentgyörgy (Sf. Gheorghe)
- 1985-1993 Scientific researcher, Head of the ICPE-Bucharest, Marosvásárhely (Tg. Mures) subsidiary 1991-1993
- 1993-2004 university teacher, lecturer, associated professor (1998-2001) full university professor (2001-) at the Electrical Engineering Department, Technical Faculty of "Petru Maior" University (courses: Optimal Programming (1993-), Optimal Control (1993-), System Theory (1998-), System Identification (1993-), Adaptive Control Theory (1997-), Artificial Intelligence (1998-), Robot Control Theory (1998-2001), Adaptive and Intelligent Control - Graduated course (2001-). I was the coordinator of the Automation and Industrial Informatics undergraduate program, and the initiator of the master program Electrical Engineering teaching at the Petru Maior University, Head of the CNCSIS recognized University Research Institute.
- 1999-2002, Vice-dean of the Technical Faculty of the "Petru Maior" University. In 2002 I resigned from this position, because the Petru Maior University did not assume the Hungarian language technical teaching.
- 2001-2004 Vice-president of the Sapientia Foundation, Tg. Mureș subsidiary, head of the automation and computer science specialties, associate professor of the Sapientia University, and Head of the Electrical Engineering Department, member of Scientific Council of Research Institute of the Sapientia Foundation.
- 2004- Vice-rector of the Sapientia University
- 2007-2012 Deputy Rector of the Sapientia University
- 2013- Elected Rector of the Sapientia University

Professional membership:

A World Council of the Hungarian Professors (**MPV**)- member
MTA Hungarian Sciences Abroad Committee member
Hungarian Technical Scientific Society of Transylvania (**EMT**) – member
Transylvanian Museum Society (**EME**) -member
Romanian Automation and Informatics Society (**SRAIT**) –member

Awards: For Hungarian Informatics – ministerial award 2004, „Pro Universitate et STIENTIA”, MPV award 2007, Order of Merit of the Republic of Hungary 2011, "Báthory István" award of the EMNT 2013.

Publications: 3 books, 7 universities textbooks and more than 60 scientific articles.

Professional skills: I continued my undergraduate studies at the “Polytechnic University of Timișoara” - Electrical Engineering Faculty, Computer Process Control Specialty, where I obtained Automation and Computers Engineer qualification. Parallel with my university studies I joined the non conventional energy research program of the University’s Physics Department, where the main purpose of this program was the capture and utilisation of the solar energy. In this research team coordinated by professor Coletta de Sabata, head of the Physics Department I studied the real sphere, concerned parabola geometry concentrator mirror error, in order to reduce power loss effect. With Bessel function’s based approach I also deduced the heat transfer and temperature distribution, and I developed an automatic directing system that follows the maximum light flux of the collector mirrors. Due to my results, in 1979 in parallel of my undergraduate studies I was accepted to work as university assistant at the Physics Department, where I have been teaching until to the end of my university studies (1981). At the end of my studies the university Senate offered me a research and university teaching position, with an abridged trainee period (2 years). The proposed research position was at the Romanian Nuclear Research Institute (IRNE) Pitești, the teaching position was at the Polytechnic University of Timișoara.

As a trainee engineer at the Machine and Machine Parts (ISAMA) of Sf. Gheorghe in the framework of the Machine Designer Section a team lead by me designed and conducted experiments on an automatic, computer controlled welded metal construction's vibration stress reducing machine that was used in machine tools fabrication. In parallel with the stress reducing process experimentation and validation we developed a mathematical model [2.1.4], with which we accomplished the automatic control of the equipment. Our equipment and the researcher team obtained several awards, out of which the most relevant was the “best equipment” in the Covasna County Inventor Saloon 1983.

As a result of my technical and scientific work I obtained a research position at the Tg. Mureș subsidiary of the Electrotechnical Research Institute (ICPE) Bucharest, coordinated by Dr. Szentgyörgyi László, where I began my activity in 1985. The high standards, selective and creative working atmosphere I met there, together with an intense activity covering almost the full area of electro-thermal techniques meant a real challenge to me. As a first task I dealt with the mathematical modeling of high power electrical arc furnaces, where I developed a computer simulation model of the electric field and heat distribution of the real high power electric arc. Based on these results using a simplified electric arc model, in 1989 I proposed and patented [3.1] a computer estimation method for electric arc parameters’ measurements [2.4.4]. This is an alternative way to CLAUSTHAL method (with 70-80% error of arc voltage and power measurement) that reduces these errors to 10-20%. This method was also used with success to estimate immeasurable load parameters, in medium and high frequency high power static inverters [2.1.2], [2.3.1].

In 1987 I was entrusted to coordinate a High Power Electron Beam (EB) Welding and Processing Equipment research and development team. The "CTW5/60" EB Gun was developed at the "Manfred von Ardenne" research institute Dresden, Germany and the powering and computer control equipments were developed by our team. From 1989, when we finished the development of our first EB processing equipment, until today we applied it with success for several technological processes. Based on a 2D/3D finite elements method software (developed together with Dr. Horváth Sándor) in early 1990’s we developed our first triode type electron gun in order to process magnets with rare earth elements. My contributions regarded the computer control of these EB equipments, the optimal control of the EB high voltage supply, the optimal generalized minimal variance tracking control of the triode type cathode assembly based on an original "Extended Kalman" filtering algorithm, the adaptive fuzzy 3D trajectory tracking of the EB processing based on the electron beam scanned image capturing and processing system, and the maximal welding depth control based on the extracting and control of the electron beam deepening rising time [2.3.4],[2.3.5],[2.3.7],[2.3.12],[2.4.2]. Our image capturing PC slot was projected and realized in 1996 in collaboration with dr. Haller Piroška, associate professor of the "Petru Maior" University.

I studied this topic in my PhD thesis as well. With our EB processing equipment we made several experiments in order to extend the possibilities of this technology. One of these is the limited surface thermal treatment that can be possible with a special self made computer interface and software. My students and present university colleagues were also engaged in these research works, and three of them elaborated their PhD thesis in this field (dr. Márton László, dr. Brassai Tihamér, dr. Dulau Mircea).

The Reactive Magnetic Sputtering Techniques are counted as a related area to the material processing and computer process control technologies, to which I joined from 1990. In the framework of this considerably challenging theoretical and practical research activity, with which I deal until today together with my colleague, Dr. Biro Domokos, we developed our own planned experimental magnetron sputtering equipment. We are engaged in the international research activity within the Institute of Technical Physics and Materials Science of the Hungarian Academy of Sciences. The main goals of these researches are to obtain special physical and chemical properties thin-film nanostructure materials. We studied the metal ceramics type thin film multi layer substances, especially the TiAlN and ZrCuN amorphous and nano-crystal gradient combinations. In this field we deduced a nonlinear dynamic mathematical model of the sputtering processes in order to establish a computer process control, and together with my student dr. Kutasi Nimrod we developed an original fuzzy control of the reactive magnetic sputtering process [2.3.17], [2.3.18]. Several of my students and colleagues continued our research in their doctorate thesis (dr. Gyorgy Katalin, dr. Papp Sandor).

Nowadays I am working on high complexity systems' nonlinear model predictive control, especially in receding horizon control strategy and in state dependent Riccati equations (SDRE) based control applications.

Based on our scientific results in 2005 we established a "Modern Technologies and Energy Management" national research institute at the "Petru Maior" University, where I was working as director until 2005.

Teaching activity: During the 8 years passed at the "Petru Maior" University and the 15 years at the Sapientia University I delivered different special courses at Automation, Industrial Informatics and Computer Sciences programs, such as: System Theory, Nonlinear Systems, System Identification, Optimal Programming, Optimal Control Theory, Adaptive Control, Robot Control, Artificial Intelligence, Real Time Operating Systems, Model Predictive Control, Intelligent and Adaptive Control. The variety of these subjects, and the years I spent with research assured me a good experience onto this area of teaching. Based on these experiences I was the coordinator of the accreditation process of the Computer Science program at the "Petru Maior" University, and Head of Electric Engineering Department during the accreditation of the Automation and Computer Sciences programs at the Sapientia University. My students proved their competitiveness at many local and international level competitions, and several of them became university teacher.

Management: From 1987 I coordinated with success the Electron Beam Welding and Processing Equipment Research Team. Between 1987-1989 we finalized the development of the equipment, after which we conducted several successful experiments and realized further developments in order to extend the technology's possibilities. In 1992 I was nominated head of the Tg. Mureş subsidiary of the Electrotechnical Research Institute Bucharest. My task was to coordinate the structural reorganization of this centrally coordinated institute into high performance locally structures. These new companies' (AAGES, INDELCO, OPTITERM, ACTEL, TELEVOX) competitiveness and their results proved that the reorganization was a good idea.

From 1993 at the "Petru Maior" University I was the coordinator of the Automation and Industrial Informatics specializations, and after 1997 when these programs obtained the final accreditation they became the most recognized electrical engineering fields of the University. Unfortunately the University did not accept the idea to extend the teaching also in Hungarian. This was the main reason why I resigned from Vice-dean position of the Engineering Faculty in 2002, and I dedicated myself to the organizing of the Sapientia University's electrical engineering specialties and its department.

In 2005 I was elected as Vice-rector of the university, and after two years in 2007 I was nominated as Deputy Rector of the University by the Sapientia Foundation. During this period first we obtained the accreditation of several study programs and in 2012 the final institutional accreditation, and national recognition of this young University. On the general election that followed the official recognition in 2012 I was elected as Rector of the Sapientia University by the academic community.

Nowadays our University offers 31 recognized undergraduate and 12 master study programs and it has several national and international partners. From the point of view of scientific results our University is the best private university in Romania. In the last two years with the financial help of the Hungarian Government we finalized the new building of Kolozsvár (Cluj-Napoca) Campus Faculty, the new student dormitory building at Marosvásárhely (Tg. Mures) Campus, and we renovated and extended the Csíkszereda (Miercurea Ciuc) Campus building. With our 2200 students we are the second biggest higher education institution that offers Hungarian language teaching in Romania. We hope that our University shall be able to extend its offer at the Sepsiszentgyörgy location as well, where today one BSc study program in agricultural engineering is functioning.

Marosvásárhely–Tg. Mures, 11/14/2016

Dr. Dávid László



Main Publications:

1. Books

1. **Dávid L.**, *Tehnici de Optimizare (Optimal Control)*, Editura Universitatii "Petru Maior" TG. Mureș, 2000, 236 oldal, ISBN 973-8084-01-6
2. **Dávid L., Márton L.**, *Rețele Neuronale Artificiale și Logica Fuzzy în Automatizări*, (Artificial Neural Networks and Fuzzy Logic in Automation), Editura Universității "Petru Maior", 2000, ISBN 973-8084-02-4
3. **David L.**, *From optimal control to model predictive control*, (Az optimális szabályozástól a modell predikciós szabályozásig), Editura SCIENTIA 2007, ISBN 973-7953-38-X, 311 oldal, kiadás alatt. (CNCSIS által akkreditált kiadó)

2. University textbooks.

1. **Dávid L., Márton L.** *Teoria sistemelor și Tehnici de optimizări*, (System Theory and Optimal Control) Îndrumar de laborator, Universitatea Tehnică. TG. Mureș 1995, 80 pagini.
2. Sarchiz D, **Dávid L.** *Cercetări operaționale în electroenergetică*. (Optimal programming in electroenergetic) Îndrumător de laborator, Universitatea „Petru Maior” TG. Mureș 1997, 82 pagini.
3. **Dávid L.**, *Identificarea Sistemelor (System Identification)*, Notițe de Curs. Universitatea "Petru Maior", TG. Mureș 1997,
4. **Dávid L.**, *Tehnici de Optimizări în Automatizări (Optimization in Automatic Control Theory)*, Notițe de Curs. Universitatea Tehnică TG. Mureș, 1996, 117 pagini.
5. Mircea Dulau, **László Dávid**, Dumitru Soaita, Lucian Grama, Biró Dominic, Emil Geampana: ELECTROTEHNOLOGII, Lucrari de Laborator (2001), Tipar "Universitatea " Petru Maior", Coautor pentru referatele nr. 7. si nr. 8. pg. 52-76.
6. Gyorgy Katalin, **David Laszlo**, Identificarea Sistemelor (System Identification), Tipar Universitatea Petru Maior TG. Mures 2005, 54 pag. (CZU. 004.414.23.)
7. Gyorgy Katalin, **David Laszlo**, Tehnici de Optimizare, Tipar Universitatea Petru Maior TG. Mures 2005, 60 pag. (CZU. 004.258.)

2. Scientific Publications

2.1. Scientific Publications, articles

1. **Dávid L.** Compensarea influenței variațiilor tensiunii înalte asupra deflexiilor fluxului de electroni accelerați, *Electrotehnică Electronică Automatică-EAA, Vol. 33. iun. 1989, pag. 214-217.*
2. **Dávid L.** Metodă de estimare "ON LINE" a parametrilor de circuit pentru generare statică de medie frecvență, *Electrotehnică Electronică Automatică-EAA, Vol. 33. iun. 1989, pag. 181-183.*
3. **Dávid László** Reducerea pierderilor electromagnetice în tole de Si, *Tratate cu fascicul de electroni, volumul Colocviu Național SOCER, aug. 1997, pag. 109-116*
4. **Dávid László** Reducerea tensiunii și stabilizarea structurilor metalice prin vibrații, *volumul Colocviu Național SOCER, aug. 1997, pag. 117-122*
5. Dulău M., **David L.**, Soaita D., *Vacuum System Control in Electron Beam Profices*, Revista TMCM, nr. 41, ISBN 973-31-1492-8, pag. 335-340, Editura Tehnică, București, 2000
6. R. Manaila, A. Devenyi, D. Biro, **L. David**, P. B. Barna, A. Kovacs: Multilayer TiAlN coatings with composition gradient, publicată în Revista "Surface and Coatings Technology" 151-152 (2002) pag. 21-25.
7. T. S. Brassai, **L. David**, L. Bako, *Hardware implementation of CMAC based artificial network with process control application*, Scientific Bulletin of the „POLITEHNICA” University of Timisoara, ROMANIA, Transaction on ELECTRONICS AND COMMUNICATIONS, Tomul 49(63), Fascicola 1, 2004, pp.209-213, ISSN 1583-3380, Editura POLITEHNICA. – (cod. CNCSIS C-252/B-252 din 2005);
8. Dulău, M, **David, L.**, Morar, A., *The Study of the Thermal Surface Modification by Electron Beam*, în Revista Acta Electrotehnica, Academy of Technical Sciences of Romania, Technical University of Cluj-Napoca, Volume 46, Number 1. ISSN:1224-2497, pp.13-17, Mediamira Science Publisher, Cluj-Napoca, (2005);
9. Dulău M., Morar A., **David L.**, *The control of electron beam for welding technologies*, Revista Electrotehnica, Electronica, Automatica-EEA, Vol.52, Nr. 4, ISSN 1582-5175, Editor S.C. ICPE S.A. București, Editura Electra, pag.33-36, oct.-dec. 2004. (cod CNCSIS D-465);
10. Dulău M., Morar A., **David L.**, Applications of High Power Electron Beam Processing, revista Acta Electrotehnica, Academy of Technical Sciences of Romania, Technical University of Cluj-Napoca, Volume 45, Number 4, ISSN 1244-2497, pp.469–474, Mediamira Science Publisher, Cluj-Napoca, 2004. (cod CNCSIS B-576);
11. Mircea Dulău, **Laszlo David**, Modelling and Simulation of Electron's Trajectory inside of Electron Beam Gun, Control Engineering and Applied informatics, Published by the Romanian Society of Control Engineering and

Technical Informatics CEAI Vol. 9. No. 1/2007, National Member Organization of IFAC, ISSN 1454-8658, pp. 27-32, (Revista indexată BDI, cod CNCIS 302 B+/2007)

12. **György K.**, Dávid L., Comparative Analysis of Model Predictive Control Structures, Acta Universitatis Sapientiae, Electrical and Mechanical Engineering, 2, 2010, pp. 5-15, ISSN 2065-5916, [EBSCO]

2.2. Scientific Publications in Academic Review

1. Dulău M., David L., Șoaita D., *Surface Treatment Technology of Fe-Si Alloy with electron Beam Equipment*, Volumul TSTM - 4 (Optimum Technologies, Technologic Systems and Materials in the Machines Bulding Field), pag. 233-236, ISSN 1224-7400, Romanian Academy, Branch Office of Iași, 2000;
2. Dulău M., David L., Șoaita D., *Mathematical Models for Thermal Source used in Electron Beam Processing*, Volumul TSTM - 4 (Optimum Technologies, Technologic Systems and Materials in the Machines Bulding Field), pag. 237-240, ISSN 1224-7400, Romanian Academy, Branch Office of Iași, 2000.

2.3. Scientific Publications in International Conference Proceedings

1. Szentgyörgyi L, Dávid L., Székely Gy. Periódikus Folyamatok Optimális Szabályozása, *publicat în volumul Conferinței MSZVT Budapest 1992. pag. 197-199.*
2. D Biro, L. Dávid, Observations on the instability occurring in the reactive sputtering process. *publicat în volumul Conferinței VIII-th International Conference on TOOL, Miskolc 1993, pag 76-81.*
3. L.Dávid, L.Szentgyörgyi, F.T.Tănăsescu, L.Ajtai, Mathematical modelling of electron beam gun cathode assembly, Proceedings of the 4th International Conference on Optimization of Electric and Electronic Equipments edited by Transilvania University of Brașov 1994 pag. 311-315.
4. L.Márton, L.Dávid, Intelligent Control in Electron Beam Welding System Based on Image Processing, Proceedings of Fifth International Symposium on Automatic Control and Computer Science, 1995, vol.1, pag. 252-256,
5. L.Márton, L.Dávid, Similarity between state, parameter and neurofuzzy real time control in electron beam welding equipment. *Proceedings of 3rd Workshop on Intelligent Manufacturing Systems IMS'95-IFAC 1995,*
6. P.Haller, L.Dávid, L.Márton, Distributed Control System for a tracking problem, *Proceedings on Automation and Industrial Informatics, vol.1, pag.169-176, Timișoara, 1996.*
7. L.Márton, L.Dávid, Nonconventional welding technology based on artificial intelligence, *Proceedings on TOOLS, pag. 207-213, Miskolc, 1996.*
8. C.Boloș, V.Boloș, L.Dávid On The optimisation of the processing, spiroid worm gears, *Proceedings on TOOLS, Miskolc, 1997, pag.*
9. S.M.Szilágyi, L.Szilágyi, L.Dávid, Comparison between neural-Network-based adaptive filtering and wavelet transform for ECG characteristic points detection, *Proceeding of the 19th international conference of the IEEE Engineering in Medicine and Biology-EMB Society oct.1997, Chicago, pag.272-274.*
10. S.M.Szilágyi, L.Szilágyi, L.Dávid, ECG Signal compression using adaptive prediction, Proceeding of the 19th international conference of the IEEE Engineering in Medicine and Biology-EMB Society oct.1997, Chicago, pag.101-104
11. L.Dávid, D.Biró, L.Márton, Optical emission spectroscopy as process monitor in reactive magnetron sputter deposition of stoichiometric TiN films implemented for PC control of reactive gas dosage, *Proceedings of ROCAM '97, Bucharest, VII. 17.*
12. Dávid L., Márton L., Abrudean M., Dulău M., Electron Beam Heating Parameters Control in *Proceedings on A&Q 98 vol. Automation, pag A552-A558, editura MEDIAMIRA Cluj-Napoca, ISBN 973-9358-15-2, (1998)*
13. Lorinczi A, Haller P., Sarchiz D., David L., Distributed Control System for an Industrial Application, *Proceedings on A&Q 98 vol. Automation, pag A160-A166, editura MEDIAMIRA Cluj-Napoca, ISBN 973-9358-15-12, (1998),*
14. D Biró, L. Dávid, P Haller, Dynamic Control of Reactive Magnetron D.C. Sputtering Process for Tribological Coatings Development., *Proceedings of COST516 Tribology Symposium, Espoo, Finland, 14-15 May 1998, pag. 325-336.*
15. W. Kappel, A.Rusu-Petroaia, H.Gavrilă, L.David, D.Biro, Losses Decreasing in Grain Oriented Fe-Si Electrical Steel bz Electron Beam Surface Treatements, Proceedings of the 2nd Japanese –Romanian Joint Seminar on Applied Electromagnetics and Mechanics, 16-18, noi. 1998, Kiryu, Gunma, Japan, pag. 74-75.
16. László Dávid, Mircea Dulău, Wilhelm Kappel, Aurelia Rusu, Electron Beam Equipment for Surface Treatment Technology of Fe-Si Alloy, Proceedings of ICPE'99 Workshop Bucharest, 1999.
17. D. Biró, L. Dávid, Z. Germán, A. Devenyi, M. Adamik, Coating Optimisation by Dynamic Control of Reactive Sputtering Process. Proceedings of COST516 Tribology Symposium, Antwerpen, Belgium, 1999.pag. 123-131.

18. L. Dávid, D. Biró, N. Kutasi, M. Berger, Adaptive fuzzy-logic control in reactive magnetron sputtering process for the thin film deposition, Proceedings of the 3rd COST 516 TRIBOLOGY SYMPOSIUM, Edited by A Igartua and A Alberti, Fundacion TEKNIKER, Eibar, Spain, May, 2000, ISBN:84-6999-2557-1, pag.155-163
19. Dávid L., Biró D., Fuzzy logic based adaptive control of multilayer reactive sputter deposition, for Tribological Coatings Developments. Conferinta Xth International Conference on Tools, University of Miskolc, Hungary 5-7 sept. 2000.
20. L. Dávid, Dulău M., Abrudean M., Advanced Motion and Deflection Control in Electron Beam Surface Treatment Material Processing, Proceedings of Q&A-R 2000, International Conference, Vol. I, ISBN 973-686-056-6, pag.251-256, 19-20 May 2000, Cluj-Napoca.
21. László Dávid, Dumitru Soaita, Mircea Dulău, Aplicații ale sudării cu fascicul de electroni de mare putere, Volumul Conferinței Internaționale de Inginerie Integrată C2I-2002, Editura Politehnica Timișoara 2002, ISBN 973-8247-92-6 pag 87-88.
22. Dumitru Soaită, Mircea Dulău, Laszlo David, Using of the Electron Beam welding in Manufacturing of Transmission Gears, Applied Mechanics, Tome 47, special number, 2002, Proceedings of the international conference on manufacturing systems, ICMaS 2002, Editura Academiei Române, București 2002, ISSN 0035-4074, ISBN 973-27-0932-4, pag.491-494
23. D. Biro, L. David, P. B. Barna, R. Manaila, A. Devenyi, A. Kovacs: Nanocomposite Ti_{1-x}Al_xN coatings prepared by fuzzy-logic controlled reactive magnetron sputtering process, 4th Symposium of European Vacuum Coaters, Anzio-Roma, Sept.25-27 (2000).
24. R. Manaila, A. Devenyi, D. Biro, L. David, P. B. Barna, A. Kovacs: Multilayer TiAlN coatings with composition gradient, lucrare prezentata oral de P. B. Barna la "The European Material Conference" Strasbourg (France), June 5-8 2001 și publicată în "Surface and Coatings Technology" 151-152 (2002) 21-25.
25. S. M. Szilágyi, Z. Benyó, L. Dávid – *Heart Model Based ECG Signal Processing*, Modelling and Control in Biomedical Systems 2003, Proceedings volume from the 5th IFAC Symposium Melbourne (2003), p.213-217
26. S. M. Szilágyi, Z. Benyó, L. Dávid – *Iterative ECG Filtering for Better Malfunction Recognition and Diagnosis*, Modelling and Control in Biomedical Systems 2003, Proceedings volume from the 5th IFAC Symposium Melbourne (2003), p.295-300
27. S. M. Szilágyi, Z. Benyó, L. Dávid - *ECG Signal Compression and Noise Distortion Effect Analysis*, World Congress on Medical Physics and Biomedical Engineering, Sydney, Australia (2003), 4391.pdf
28. S. M. Szilágyi, Z. Benyó, L. Dávid - *WPW Syndrome Identification And Classification Using ECG Analysis*, World Congress on Medical Physics and Biomedical Engineering, Sydney, Australia (2003), 4423.pdf
29. S. M. Szilágyi, Z. Benyó, L. Szilágyi, L. Dávid - *Adaptive Wavelet-Transform-Based ECG Waveform Recognition*, 25th Annual International Conference of IEEE EMBS, Cancún, Mexico (2003),
30. Szilágyi L, Dávid L., Szilágyi SM, Benyó B, Benyó Z: *Improved Intensity Inhomogeneity Correction Techniques in MR Brain Image Segmentation*. 17th IFAC World Congress, Seoul, 9625-9630 (2008), ISBN 978-1-1234-7890-2
31. 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 (2008), ISBN 978-1-4244-1814-5, ISSN 1557-170X.
32. László Szilágyi, Sándor M. Szilágyi, László Dávid, Zoltán Benyó: Multi-stage FCM-Based Intensity Inhomogeneity Correction for MR Brain Image Segmentation. [ICANN \(2\) 2008](#): 527-536 (DBLP Bibliography Server)

2.4. Scientific Publications in Universities Proceedings

1. L.Dávid Comanda adaptivă a cuptoarelor de sinterizare grafică. *Buletinul Științific Universitatea Tehnică din TG. Mureș 1993, vol. VI pag.101-108.*
2. L.Dávid, L.Márton, Prelucrarea imaginii în tehnologiile cu flux de electroni, Buletinul Științific Universitatea Tehnică din Tg.Mureș 1993, vol V, pag.59-62.
3. Dávid László Metodă de estimare a parametrilor în vederea conducerii adaptive a cuptoarelor de topire cu arc electric, Buletinul Științific Universitatea PETRU MAIOR din Tg.Mureș 1996-1997, pag.
4. Dávid László, Szentgyörgyi Vasile, PARAMETERS ESTIMATION METHOD AND ADAPTIVE CONTROL OF STEELMAKING ARC FURNACE, Buletin Științific al Universității PETRU MAIOR Tg.Mureș 1998-1999, pag.
5. Dulău M., David L., Soaita D. - *Electron beam equipment for welding technology*, "Acta Universitatis Cibiniensis" Scientific Review, Universitatea "Lucian Blaga" Sibiu, 2001.

2.5. Scientific Publication in Conference Proceedings

1. L.Dávid, L. Márton, Inteligență artificială în comanda instalației cu fascicul de electroni, *publicat în volumul conferinței MTeM'95 vol. 1.pag 337-342, Cugir, 1995.*
2. G.Farkas, L.Dávid, Generator de caractere, Proceedings of ICCE'91, Sinaia,1991,pag 167-172.

3. G.Farkas, L.Dávid, Generator în cuadratură programabil, *Proceedings of ICCE'90 Sinaia, 1990*, pag.357-361.
4. Dávid László, Biró Domokos, Elektronsugaras megmunkálberendezések a Gépgyártástechnológiában, *volumul OGET'97, mai.1997*, pag.41-44.
5. Dávid László, Dulău Mircea, Biró Domokos' Artificial Intelligence Control Used in Thermal Surface Modification by Electron Beam, *Proceedings of EMES'99, Oradea*, pag.
6. Mircea Dulău, László Dávid, Reducerea pierderilor electromagnetice în tole de Si prin tratament de suprafață cu fascicul de electroni, Seminar 1999 Cluj-Napoca, pag.
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11. L. David, K. Gyorgy, ing. A. Gligor, ing. H. St. Grif, New trends in process control with neuro-fuzzy systems, Sesiunea de comunicări științifice, Universitatea "Petru Maior" Tg.Mureș, 27-28 Oct. 2000.
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13. L.David, D. Biro, K. Gyorgy: Pulverizarea reactiva pentru depuneri de straturi subtiri, Conferinta internationala "Pulverizarea termica" Timisoara 20-21 iunie 2000, organizat de Institutul national de Cercetare-dezvoltare in Sudura si Incercari de Materiale (ISIM), Timisoara.
14. Dulău M., David L., Șoaita D. - The study of control possibilities in electron beam processing, A IV-a Conferință de comunicări științifice cu participare internațională OPROTEH-2001, 21-24 nov., Universitatea Bacău.
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16. Katalin György, Laszlo David, Dominic Biró, Consideration about dynamical modelling reactive DC sputtering process and partial pressure estimation of reactive gas Volumul Conferinței cu Participare Internaționale Inter-Ing 2003, Editura Universității Targu Mureș 2003, ISBN 973-8084-83-0, ISBN 973-8084-81-4 pag. 97-100
17. **György K.**, Dávid L., Comparison between Centralized and Distributed Model Predictive Control, Macro 2010, Proceedings of the 2nd International Conference on recent achievements in Mechatronics, Automation, Computer science and Robotics, Sapientia University, Tg. Mures 2010, pp. 135-142. ISBN 978-973-1970-39-4
18. Dávid, L., **Bakos, L.**: *Solving MPC Strategies Used In Manufacturing Process Planning Based On Holonic Concept*, *Proceedings of MTeM'2009*, Cluj Napoca, 2009, ISBN 973-7937-07-04, p.65-68.
19. **György K.**, Dávid L., A nem korlátos MPC és véges horizontú diszkrét LQR algoritmusok összehasonlítása - Comparison between unconstrained MPC and discrete time LQR algorithms with finite horizon, XIX Számokt Nemzetközi Számítástechnika Konferencia- International Conferece on Computer Science, 2009, Târgu Mureș, 8-11 octombrie.2009, pag. 220-226 (ISSN 1842-4546)
20. S.T. Brassai, L.F. Márton, L. Dávid, L. Bakó, Hardware Implemented Neural Network Based Mobile Robot Control, Conference proceedings International Symposium for Design and Tehnology of Electronic Packaging 14th Edition, Transilvania University of Brașov, Romania, 2008, ISSN1843-5122, pp. 130-134
21. M. Dulau, D. Soaita, L. David, S Oltean, Uses of the Electron Beam for Microweldings, Proceedings of The 13th International Conference of Nonconventional Technologies ICNcT 2007 Organized by Technical University GH. Asachi of Iași and EUROSTEPS, May 17-18, 2007, Iasi, Romania,
22. **David, L.**, Bakos, L.: Efficient parallel algorithm for solving production scheduling problem, (*Egy hatékony párhuzamos algoritmus általános termelés ütemezési feladat megoldására*), *publicată în lb. maghiară în volumul OGET'2006*, p. 93-96, Tg. Mures, 2006, ISBN 973-7840-10-3,

3. Scientific Research Obtained by Competitions.

1. CNCSIS által akkreditált Egyetemi Kutatóintézet. 2001-es pályázat, megnevezés MANAGEMENTUL ENERGIEI SI AL ELECTROTEHNOLOGIILOR (Elektro-technológiák és energiamedzsment), Kutatóintézet igazgató: Prof. dr. ing. Dávid László.

2. LABORATOR DE INTELIGENȚĂ ARTIFICIALĂ CU APLICAȚII ÎN MAMAGEMENTUL ENERGIEI ȘI TEHNOLOGII NECONVENȚIONALE (Mesterséges intelligencia laboratórium) GRANT-PROGRAM – tip E, 2002, Pályázat igazgató: Prof. dr. ing Dávid László.

Participation to the Scientific Research Teams

1. FP5 EU keretprogram GRD-2999-30299, szerződés, nanotechnológiák szerkezeti kutatása (2001-2005). Közös keretszerződés a „Petru Maior” Egyetem és ICSFM –Budapest, amelyet prof. Michael Stueber koordinál a „Forschungszentrum Karlsruhe” keretében, a keretszerződés neve “NANOCOMP”.
2. Részvétel a 324/I/2000 sz. szerződésben, amelyet a Román „Agenția Naționala Pentru Știință, Tehnologie și Inovare”- Bucarest, finanszírozott Témakör: *”Vékonyréteg TiN bevonatok tribologiai kutatása”*, kivitelező „Petru Maior” Egyetem.
3. Részvétel a Román - ANSTI által finanszírozott 6051/2000. sz. Kutatási szerződésben Témakör: *„Amorf és nanokristályos múltirétegek gradiens összetételű előállítására reaktív dc magnetronos porlasztással”*.

3. Patents

1. **Dávid L.**, *Metodă și dispozitiv de măsurare a mărimilor electrice la cuptoare cu arc electric. (Elektromos ívkemencék elektromos paramétereit becslő módszer és merendezés) Találmány 97362 -22.12. 1988.*

4. The main scientific results obtained by competition based research contract

- *Elektronsugaras hegesztő berendezés, 42-483/1984 sz. szerződés, kivitelező ICPE Bukarest, marosvásárhelyi fiókintézet, a megvalósított berendezés értéke: 750 mii DM.*
- *Számítógépes képletapogatás elektronsugaras berendezéshez. 42-A64/1990 sz. szerződés, kivitelező ICPE Bukarest, marosvásárhelyi fiókintézet.*
- *Nagyfeszültségű tápforrás elektronsugaras berendezéshez, 42-A63/1990 sz. szerződés, kivitelező ICPE Bukarest, marosvásárhelyi fiókintézet.*
- *Nagyfeszültségű tápforrás reaktív dc magnetronos porlasztó berendezéshez, 03 /1991 sz. szerződés, kivitelező ICPE Bukarest, marosvásárhelyi fiókintézet.*
- *Elektronsugaras olvasztó berendezés, ritkaföldfém mágnesek előállításához, 2770 /1996 sz. szerződés, kivitelező „Petru Maior” Egyetem,*
- Mesterséges Intelligencia Laboratórium, „Petru Maior” Egyetem

Fontosabb kutatási szerződésekben való részvétel

- *Elektronsugaras megmunkálást felügyelő szakértői rendszer Grant 664, 4046/95, 660 keretprogram.*
- *PVD módszerrel előállított ZrNx termorezisztens rétegek: 755/1996,*
- *TiN vékonyrétegek tribologiai tulajdonságainak vizsgálata: MCT (ANSTI) 1827/1997/1998/1999.*
- *Gradiens múltiréteg reaktív dc magnetronnal előállított keménybevonatok: 5103/1999.*
- *Elméleti és kísérleti kutatások a reaktív dc magnetronos kisülési folyamat tanulmányozására: CNCSCU MEI755/1996*

5. The main scientific equipment realized

- *Hőmérséklet-szabályozó cilindrikus napelemhez, a temesvári Műegyetem Fizika tanszékén megvalósított és Szakálházán az LTX kísérleti berendezésben alkalmazott eszköz, 1980. A megvalósítást 1982-ben országos II díjjal tüntették ki Nagyszébenben.*
- *Vibrációs feszültségmentesítő berendezés, 1983-ban az Sepsiszentgyörgyön az ISAMA-ban megvalósított berendezés, amelyet 1984-ben megyei I díjjal tüntettek ki.*
- *Elektronsugaras megmunkáló berendezés, 1989-ben Marosvásárhelyen az ICPE-ben megvalósított és jelenleg a „Petru Maior” egyetemen működő berendezés, 10kW, 60kV, számítógépes vezérlés, Szoftverfejlesztések: vizuális képfeldolgozás és automata pályakövetés, fuzzy fókuszáram vezérlés, neuro-fuzzy katód hőmérsékletszabályozás*
- *Reaktív DC magnetronos porlasztó berendezés. 1990-2000 között a „Petru Maior” Egyetemen megvalósított berendezés, 1kV, 6kW, Szoftverfejlesztések: plazma spektrum utáni vezérlés, adaptív fuzzy szabályozás, parciálisnyomás becslése a Kalman szűrővel, minimális szórású hozamvezérlés.*

6. Guest Researcher Program

- Tanulmányút a drezdai „**Manfred von Ardenne**” kutatóintézetnél, Németország 1989 február, Elektronsugaras Technológiák és berendezések témakörben.
- Tanulmányút a drezdai „**Manfred von Ardenne**” ” kutatóintézetnél, Németország 1990 június, *CTW 5/10 illetve CTW 10/60* elektronágyúk modern számítógépes vezérlése témakörben .
- Vendégkutató (Guest Researcher), a Tokyo Institute of Technology egyetemnél, Japán, 1999 február-március, gyorsító berendezések, képfeldolgozás témakörben, **contact person professor Toshiyuku Hattori**

7. Awards:

- Magyar Informatikáért szakmai érem, Informatikai és Hírközlési Miniszter, 2004. március 15.
- „Pro Universitate et Stientia”, kitüntetés, Magyar Professzorok Világtanácsa - MPV, 2007. szeptember 7.
- Magyar Köztársasági Érdemrend Középkeresztje, Magyarország Köztársasági Elnöke, 2011. aug. 3.
- „Báthory István” díj, EMNT, 2013. március

8. Participation to PhD thesis:

- „Contributii la modelarea sistemelor de fabricatie holonice”, nyilvános védés hivatalos referense, Kolozsvár Műegyetem, 2007
- „Sisteme neuroadaptive realizate cu circuite cu aplicatii în sisteme de control automat”, nyilvános védés hivatalos referens, „Transilvania” Egyetem Brassó, 2008
- “Optimization of Distributed Electronic Systems, Embedded in Applications”, Losoczi Lajos, nyilvános védés hivatalos referens, „Transilvania” Egyetem Brassó, 2012
-

9. Main awards obtained with my students

- **II-díj** TDK konferencia – BME - Budapest 1995. nov. 8-10. a következő dolgozat szakmai vezetéséért: *Szilagyi S., Szilagyi L., Moldovan I., V év AII szak, „Petru Maior” Egyetem. Az EKG jelek számítógépes feldolgozása. (Computer Based ECG Signal Processing).*
- **I - díj** TDK konferencia - BME - Budapest 1997. nov. 3. a következő dolgozat szakmai vezetéséért: *Szilagyi L., Szilagyi S, V év, AII szak, „Petru Maior” Egyetem. Szívritmiák felismerése on-line Holter rendszerekben. (Holter telemetry in the study of Heart Rate Variability).*
- **II - díj** TDK konferencia – BME - Budapest 1999. nov. 5. a következő dolgozat szakmai vezetéséért: *Márton Lőrinc, Kutasi Nimród V év AII szak, „Petru Maior” Egyetem. A genetikus algoritmusok alkalmazása az irányítástechnikában. (Genetic Algorithm Used in Process Control).*
- **I - díj** TDK konferencia – BME - Budapest 1999 nov. 5. a következő dolgozat szakmai vezetéséért: *Kutasi Nimród, Márton Lőrinc V év AII szak, „Petru Maior” Egyetem. Reaktív mágneses porlasztó berendezés fuzzy vezérlése. (Multilayer Reactive DC sputtering Fuzzy Control)*

Marosvásárhely/Târgu Mureş, 14 November 2016.

dr. Dávid László