

Europass Curriculum Vitae



Sándor Miklós SZILÁGYI

Personal information

First name(s) / Surname(s)

Address(es)

Telephone(s)

E-mail

Citizenship

Date of birth

Gender

Male

HIRSH indexes

ISI Web of Science 10

SCOPUS 12

Google Scholar 18

Work experience

CURRENT POSITION

Dates

Since Oct 2015

Occupation or position held

Full professor

Main activities and responsibilities

Teaching programming and software engineering to computer science and informatics students (BSc) and system modelling to information technology student (MSc), research

Name and address of employer

Department of Engineering and Information Technology, George Emil Palade University of Medicine, Pharmacy, Science, and Technology of Tîrgu Mureş (38, Gh. Marinescu st, 540139 Tîrgu Mureş, Romania)

PREVIOUS POSITIONS AND FELLOWSHIPS

Dates

Oct 2012 – Sep 2015; interrupted between Apr 2013 - Mar 2014

Occupation or position held

Associate professor

Main activities and responsibilities

Teaching programming and software engineering to computer science and informatics students (BSc) and system modelling to information technology student (MSc), research

Name and address of employer

Department of Informatics, Petru Maior University of Tîrgu Mureş (1, Nicolae Iorga st, 540088 Tîrgu Mureş, Romania)

Dates

Apr 2013 - Mar 2014

Occupation or position held

Postdoctoral Research Fellowship funded by Sciex (Switzerland)

Main activities and responsibilities

Research (Topic: Intelligent and parallel methods in heart modelling)

Name and address of employer

Department of Informatics, University of Fribourg (Bd de Pérolles 90, CH-1700 Fribourg, Switzerland)
Advisor: Prof. Béat Hirsbrunner

Dates

Oct 2011 – Mar 2013

Occupation or position held

Postdoctoral Research Fellowship funded by POSDRU (Romania)

Main activities and responsibilities	Research (Topic: Modelling of the cellular signalling using artificial intelligence methods)
Name and address of employer	Department of Informatics, Petru Maior University of Tîrgu Mureş (1, Nicolae Iorga st, 540088 Tîrgu Mureş, Romania)
Dates	Mar 2002 – Sep 2012
Occupation or position held	Lecturer
Main activities and responsibilities	Teaching engineering and computer science students, research
Name and address of employer	Sapientia University of Cluj Napoca, Romania Faculty of Technical and Human Sciences of Tîrgu Mureş
Dates	Sep 1999 – Feb 2002
Occupation or position held	Researcher assistant
Main activities and responsibilities	Teaching engineering and computer science students, research
Name and address of employer	Department of Control Engineering and Information Technology, Budapest University of Technology and Economics, 1117 Magyar Tudósok Körútja 2, Hungary
Dates	Sep 2015 – Aug 2018
Occupation or position held	János Bolyai Fellowship Award
Main activities and responsibilities	Research
Name and address of employer	Hungarian Academy of Sciences, Budapest, Hungary
Dates	Sep 2011 – Aug 2014
Occupation or position held	János Bolyai Fellowship Award
Main activities and responsibilities	Research
Name and address of employer	Hungarian Academy of Sciences, Budapest, Hungary

Education, training and diplomas

Dates	8 th Dec 2016
Title of qualification awarded	Certificate of habilitation, nr. 5962
Principal subjects covered	Research, Title: Efficient and accurate algorithmic solutions for various biomedical problems
Name and type of organisation providing education and training	"Babeş-Bolyai" University of Cluj Napoca, Romania
Dates	Sep 1996 – Aug 1999
Title of qualification awarded	PhD (degree awarded in 2008)
Principal subjects covered	Heart modeling, ECG signal processing, intelligent medical data compression
Name and type of organisation providing education and training	Department of Control Engineering and Information Technology, Budapest University of Technology and Economics, 1117 Magyar Tudósok Körútja 2, Hungary
Dates	Oct 1991 – Jul 1996
Title of qualification awarded	Electrical engineering (five-year engineering education program)
Principal subjects covered	Automation and industrial informatics
Name and type of organisation providing education and training	Petru Maior University of Tîrgu Mureş (1, Nicolae Iorga st, 540088 Tîrgu Mureş, Romania)

Personal skills and competences

Languages Native speaker in Hungarian

Other language(s)
Self-assessment
European level (*)

English
Romanian
German

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
C1	C2	C1	C1	C1
C1	C2	C1	C1	C1
A2	A2	A2	A2	A2

(*) [Common European Framework of Reference for Languages](#)

Research interest	Deep learning Artificial methods in bio-medicine Biomedical engineering Cluster analysis Medical imaging Image processing Parallel architectures, parallel and distributed programming Modeling and control of biomedical systems Inhomogeneous system programming Pattern recognition and artificial intelligence Real-time modeling systems Genetic algorithms Bioinformatics Expert systems Electro-mechanical modeling of the heart ECG signal processing
Sustained courses	Artificial intelligence, Computer graphics, Medical imaging, Software engineering, Data structures, Advanced programming methods, Programming, Biomedical system modeling (master), Component based programming (master), Parallel computing (master), Research methodology (master)
Programming languages and technologies	Lua (1 year), C/C++ (23 years experience), Code optimization techniques (MIMD, SIMD, ...) (20 years experience), UML (5 years), Delphi (3 years), MPI, OpenMP, R, OpenCL, Python, 3DSlicer, Knowledge Graph Search API, Hadoop, MySQL, Microsoft Access, MapReduce programming model
Most important publications	1) László Szilágyi, Sándor M. Szilágyi: A modified two-stage Markov clustering algorithm for large and sparse networks, Computer Methods and Programs in Biomedicine, 135:15-26, (2016), IF: 2.503 2) László Szilágyi, Sándor M. Szilágyi: Generalization rules for the suppressed fuzzy c-means algorithm. Neurocomputing, 139:298–309 (2014), ISSN: 0925-2312, IF: 2.083 3) Sándor M. Szilágyi, László Szilágyi: A fast hierarchical clustering algorithm for large-scale protein sequence data sets. Computers in Biology and Medicine 48:94–101 (2014), IF: 1.240 4) László Szilágyi, Sándor M. Szilágyi, Balázs Benyó: Efficient inhomogeneity compensation using fuzzy c-means clustering models. Computer Methods and Programs in Biomedicine, 108(1):80-89, (2012), IF: 1.555 5) László Szilágyi, Lehel Medvés, Sándor M. Szilágyi: A modified Markov clustering approach to unsupervised classification of protein sequences. Neurocomputing, 73(13-15):2332-2345 (2010), IF: 1.429 6) László Szilágyi, Sándor M. Szilágyi, Zoltán Benyó: Analytical and numerical evaluation of the suppressed fuzzy c-means algorithm: a study on the competition in c-means clustering models. Soft Computing, 14(5):495-505 (2010), IF: 1.512 7) Szilágyi L, Lefkovits Sz, Szilágyi SM: Self-tuning possibilistic c-means clustering models. International Journal of Uncertainty, Fuzziness, and Knowledge-Based Systems 27(Suppl1):143-159, 2019, ISSN: 0218-4885, IF: 1.286 8) Pablo Duchon, Christoph Leuenberger, Sándor M. Szilágyi, Luke Harmon, Jonathan Eastman, Manuel Schweizer, Daniel Wegmann: Inference of Evolutionary Jumps in Large Phylogenies using Lévy Processes, Systematic biology, https://doi.org/10.1093/sysbio/syx028, published: 27 March 2017, IF: 8.523 9) Sándor M. Szilágyi, László Szilágyi, Zoltán Benyó: A Patient Specific Electro-Mechanical Model of the Heart. Computer Methods and Programs in Biomedicine, 101(2):183-200 (2011), IF: 1.516 10) Marco Galimberti, Christoph Leuenberger, Beat Wolf, Sándor Miklós Szilágyi, Matthieu Foll, Daniel Wegmann: Detecting Selection from Linked Sites Using an F-Model. Genetics Vol. 216/4:1205-1215, 2020, Oxford University Press, IF: 2.891 11) Attila Biró, Katalin Tünde Jánosi-Rancz, László Szilágyi, Antonio Ignacio Cuesta-Vargas, Jaime Martin-Martin, Sándor Miklós Szilágyi: Visual Object Detection with DETR to Support Video-Diagnosis Using Conference Tools. Applie Sciences 2022, 12(12), 5977, MDPI, IF: 2.838

Independent citations	1220+ independent citations
Most important research projects	
As project leader	1) 2016-2018: Development of new technologies based on fusion imaging for computerized 3D simulation of coronary flow and myocardial perfusion, Funded by UEFISCDI (Romania), research grant: PN-III-P2-2.1-BG-2016-0343, 102222 EUR 2) 2009-2011: Efficient skeletonization of spatial deformable objects, Funded by Sapientia Institute for Research Programs (Romania) 3) 2008-2009: Spatial study of the right ventricles geometry, Funded by Sapientia Institute for Research Programs (Romania) 4) 2003-2004: A patient monitoring system, Funded by Sapientia Institute for Research Programs (Romania)
As project team member	1) 2019-2022 „SOON - <i>Social Network of Machines</i>”, Orizont 2020, Future and Emerging Technologies (FET) programme of the European Union through the ERA-NET Cofund funding scheme, Proiect CHIST-ERA. CO: Univ. of Applied Sciences Western Switzerland (HES-SO); P: University of Medicine, Pharmacy, Sciences and Technology of Tg. Mures (UMFST), Romania; P: Slovak Academy of Sciences, Institute of Informatics (SAV), Slovakia; P: University of Oviedo (UNIOVI), Spain; Companii industriale implicate: C: Tornos SA (Tornos), Switzerland; C: MAT-obaly, s.r.o. (MAT), Slovakia; C: ArcelorMittal Innovación Investigación e Inversiones S.L. (AMI3), Spain. UMFST are contractul semnat cu UEFISCDI. Valoare totală proiect: 1.259.197 Euro; Buget UMFST (finanțare din proiect): 824.447 RON = 176.920 Euro 2) 2016-2017: Multimodal and high performance MRI/CT imaging platform intended for computational medicine, nanoparticles and hybrid imaging at atherothrombotic disease research, Romania, National research grant: POC-A1-A1.1.1-A-2015, ID P_34_465, 1.754 million EUR 3) 2016-2020: Increase of the research capacity in vulnerable coronary plaque imaging based on advanced nanoparticle technologies, fusion imaging and computational simulations, Romania, National research grant: POC-A1-A1.1.4-E-2015, ID P_37_677, 2.263 million EUR 4) 2007-2009: Development of new measurement and control methods, and their bioinformatical applications, for early diagnosis and optimal treatment of metabolic diseases, Hungarian national research grant: OTKA T069055, Hungary, 43000 EUR 5) 2004-2007: Safety critical information systems for system diagnostics, Hungarian national research grant: OTKA F046726, 23000 EUR 6) 2003-2005: System theory approach of the information of the biological signals for diagnostics, Hungarian national research grant: OTKA T042990, 48000 EUR 7) 1999-2002: Event recognition for application in technical and non-technical diagnosis, Hungarian national research grant: OTKA T029830, 31000 EUR 8) 1999-1999: Medical communication system and dummy patient, Hungarian national research grant: FKFP 0301/1999, Hungary, 18000 EUR 9) 1997-1999: Distributed Communication System in Biomedical Applications”, INCO Copernicus 960161, Hungary, 65000 ECU
Reviewer activity	Reviewed several manuscripts for journals, e.g. Biomedical Signal Processing and Control, Computer Methods and Programs in Biomedicine Reviewed several manuscripts for conferences, e.g. IEEE Congress on Evolutionary Computation (IEEE CEC)
Awards and prizes	2019 János Bolyai Memorial Diploma for excellent results of János Bolyai Fellowship (2015-2019), Hungarian Academy of Sciences, Hungary 2015 János Bolyai Memorial Diploma for excellent results of János Bolyai Fellowship (2011-2014), Hungarian Academy of Sciences, Hungary 2015 Top 10 paper (out of 223) of year 2014 published in Computers in Biology and Medicine journal [t3] 2015,2017 Excellence in Science Award, Petru Maior University, Tirgu Mureș, Romania 2010-2016 Five journal articles (papers [1], [2], [3], [5], [6]) awarded by UEFISCDI Human Resources

Invited presentations

Projects, Romania
2005 Medal of Honour, Transylvanian Museum Society, Romania
1991 Zoltán Hegyi Prize for excellent scientific activity, Farkas Bolyai Highschool, Tirgu Mureş, Romania

Invited speaker at World Congress of Medical Physics and Biomedical Engineering, Sydney, Australia, August 2003. Title of presentation: WPW Syndrome Identification and Classification Using ECG Analysis.

References

Prof. Dr. Béat Hirsbrunner, University of Fribourg, Department of Informatics
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Prof. Dr. Daniel Wegmann, University of Fribourg, Department of Biology
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Dr. Andreas Fischer, University of Fribourg, Department of Informatics
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February 1st, 2024