László Kovács
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Scientific and educational degrees

2018	PhD, PhD School of Informatics, University of Debrecen, Debrecen, Hungary
2014	English-Hungarian Special Translator in Informatics, Faculty of Informatics, University of Debrecen, Debrecen, Hungary
2010	Master of Computer Science, Faculty of Informatics, University of Debrecen, Debrecen, Hungary

Other scientific and educational certificates

2018	Deep Learning Specialization, (Deeplearning.ai, Cursera, USA)
2011	Machine Learning online course, Stanford University, USA
2010	Hungarian Intellectual Property Protection online course, Hungarian Intellectual Property Office, Debrecen, Hungary
2009	Large-scale data warehousing and BI systems administration and development, online course, Oracle University, Hungary.
2009	Fusion Middleware Development online course, Oracle University, Hungary.
2009	Summer School on Image Processing (SSIP), University of Debrecen, Debrecen, Hungary.
2008	Oracle Database Options online course, Oracle University, Debrecen, Hungary.

Languages

English (advanced level), German (basic level), Latin (basic level), Hungary (native language)

Scientific appointments

2019 –	Assistant Professor, Dept. Computer Graphic and Image Processing, Faculty of Informatics, University of Debrecen, Debrecen, Hungary
2018 –	PANDINFO Ltd., role: researcher
2017 – 2018	Sightspot Network Ltd., role: researcher
2015 – 2017	MITISZ Ltd., role: researcher
2016 –	Hybrid Small Size HPC research, Faculty of Informatics, University of Debrecen, Debrecen, Hungary.
2015 –	Assistant Lecturer, Dept. Computer Graphic and Image Processing, Faculty of Informatics, University of Debrecen, Debrecen, Hungary.
2013 – 2018	Ph.D. candidate at the Ph.D. School, Faculty of Informatics, University of Debrecen, Debrecen, Hungary.
2015	Future Internet Research, Services, Technology (FIRST) TÁMOP-4.2.2.C-11/1/KONV-2012-0001
2013 – 2015	Researcher at University Telecommunications and Information Technology Center (ETIK).
2012 – 2014	English-Hungarian Special Translator in Informatics, University of Debrecen, Debrecen, Hungary.
2010 – 2013	Full-time Ph.D. student at the Faculty of Informatics, University of Debrecen, Hungary.
2009 – 2014	Lecturer of High-Level Programming Languages Seminar as a Demonstrator, Ph.D. student/candidate.
2003 – 2010	Full-time student at the University of Debrecen, Debrecen, Hungary (Computer Science, MSC).

Research projects

2019 – 2021	GINOP-2.2.1-18-2018-00012: Automated detection of cancer cells in cytological smears, role: researcher.
2018 –	GINOP-2.1.7-15-2016-01641, FUNDUSDOMUS: Automatic recognition and characterization of diseases by cellular analysis of cellular fundus images, role: researcher.
2017 – 2020	H2020 HU-MATHS-IN, the Hungarian Service Network for Mathematics in Industry and Innovations, role: researcher.

2017 – GINOP-2.2.1-15-2017-00055: Research on osteosynthesis of implants and development of trabecular structure using Additive Manufacturing, role: researcher.

2016 – Hybrid Small Size HPC research project, Faculty of Informatics, University of Debrecen, Debrecen, Hungary.

2015 – 2018 VKSZ_14-1-2015-0072 SCOPIA: Development of software supported clinical devices based on endoscope technology, role: young researcher.

2015 PRACE - 3D CT segmentation and photorealistic visualization at IT4Innovations national supercomputing center, VŠB - Technical University of Ostrava (TUO), Ostrava, Czech, (two months), role: granted doctor candidate researcher.

2015 Massive Parallelization using Markov chains, Extreme Computing Group, Barcelona Supercomputing Center, Barcelona, Spain, (one month), role: doctor candidate researcher.

2015 TÁMOP-4.2.2.C-11/1/KONV-2012-0001: Future Internet Research, Services, Technology (FIRST) , role: young researcher.

2013 OTKA, NK101680, Mathematical modeling of clinical observations for improved melanoma detection, role: Ph.D. researcher.

2012 – 2013 HURO/1001/283/2.3.1, Cross-border academic development of an image-based recommendation system for regional educational purposes, role: Ph.D. researcher, supervisor of students.

2009 – 2011 TECH08-2 grant of the Hungarian National Office for Research and Technology (NKTH), DRSCREEN - Developing a computer-based image processing system for diabetic retinopathy screening, role: participant, Ph.D. researcher.

Patents

2017 HuSSaR – Hybrid small Size HPC resource, role: inventor, under review

2016 Additional optics equipped internal flashlight illuminator to mobile devices, role: inventor, under review

2015 Endoscope RGB LED light source with variable wavelength. University of Debrecen Technology Transfer Center, role: inventor, under review

Scholarships, grants, and prizes

2018 For Young National Talent Scholarship (NTP-NFTÖ-2018) (to support Smart PWM controller research), National Excellence Program of the Ministry of Human Capacities, Hungary.

2016 For Young National Talent Scholarship (NTP-NFTÖ-2016) (to support hybrid micro HPC, HuSSaR, Hybrid Small Size High-Performance Computing research), National Excellence Program of the Ministry of Human Capacities, Hungary.

2016 NVIDIA Academic Hardware Grant
(to support hybrid micro HPC, hybrid high-performance computing research)

2016 The seventh International HPC summer school on HPC Challenges in Computer Sciences (IHPCSS 2016).

2015 Doctor Candidate Research Grant from University of Debrecen (TÁMOP-4.2.2B-15/1/KONV-2015-0001).

2015 PRACE Summer of High-Performance Computing Program (SoHPC – 2015, two months).
HPC training at Barcelona Supercomputing Center, Barcelona, Spain.
3D CT segmentation and photorealistic visualization at IT4Innovations national supercomputing center, VŠB - Technical University of Ostrava (TUO), Ostrava, Czech.

2015 Campus Hungary Short-term mobility grant to visit for a month Extreme Computing Research Group of the Barcelona Supercomputing Center – (BSC), University of Barcelona, Barcelona, Spain(tutor: dr. prof. Vassil Alexandrov, head of the Extreme Computing Research Group, topic high performance computed algorithms)

2014 – 2015 „ Ányos Jedlik”Ph.D. candidate scholarship of the National Excellence Program.

2014 Campus Hungary Short-term mobility grant to visit 2014 IEEE International Conference on Big Data (IEEE BigData 2014).

2014 Campus Hungary Short-term mobility grant to visit 9th International Conference on Hybrid Artificial Intelligence Systems organized by BISITE group of the University of Salamanca (HAIS2014).

2014 Scientific Publication of the Year Prize, University of Debrecen, Hungary, 2014.
A. Hajdu, L. Hajdu, A. Jonas, L. Kovacs, and H. Toman: Generalizing the majority voting scheme to spatially constrained voting

2013 Best poster award, 3rd place: High-Performance Computing with Mathematical Applications, Winter School of Ph.D. Students in Informatics and Mathematics (WSPS 2013).

2013 – 2014 „ János Csere Apáczai" Ph.D. scholarship of the National Excellence Program.

2012 „Universitas" scholarship, University of Debrecen, Debrecen, Hungary.

2012 XXX-th National Scientific Students' Associations, special prize, Budapest, Hungary
L. Kovacs, B. Nagy: Látógödör automatikus detektálása digitális retina képeken algoritmusok kombinálásával.

2010 Prize of the Dean for Masters Students (due to outstanding academic results), University of Debrecen, Hungary.

2010 Hungarian Intellectual Property Protection scholarship, Hungarian Intellectual Property Office, Debrecen, Hungary.

2010 Scientific Students' Associations, local 3rd prize, Debrecen, Hungary.
L. Kovacs, B. Nagy: Látógödör automatikus detektálása digitális retina képeken algoritmusok kombinálásával.

2009 – 2011 Scholarships of the University of Debrecen (University Scholarship, Demonstrator Scholarship, Professional Scholarship), Debrecen, Hungary.

Refereeing

2015	ISPA 2015, 9th International Symposium on Image and Signal Processing and Analysis
2013	CogInfoCom 2013, 4rd IEEE International Conference on Cognitive Infocommunicaitons, Budapest, Hungary
2012	MeMeA 2012, 7th IEEE International Symposium on Medical Measurements and Applications, Budapest, Hungary

Memberships

2012 –	IEEE, member.
2010 –	Hungarian Association for Image Analysis and Pattern Recognition, member.
2010 –	Bioinformatics Research Group University of Debrecen, founding member.
2010 –	John von Neumann Computer Society member.
2009 –	Image Processing Group of Debrecen.

Teaching

2017 –	Parallel image processing and pattern recognition (C/C++, OpenCV, Matlab, OMP, OMPI, OpenCL, Cuda)
2014 –	High-Performance Computing Tools (C/C++, Grid Engine, Slurm, OMP, OMPI, OpenCL, Cuda)
2009 –	Seminars on Programming (C/C++, Java, Visual Basic)

IT experiences

- server administration (virtualization (XEN server), Linux, Windows)
- programming languages (C++ with additional libraries (Boost, OpenMP, GMP, MPFR, Cuda, Intel), Java, bash/sh)
- scientific programming (Matlab, Maple, Latex)
- HPC: distributed computing and supercomputing (Matlab scheduler, Grid Engine, Apache Hadoop+HBase, SLURM)
- other (Enterprise Architect, MySQL, Apache)

Conferences

[1] Laszlo Kovacs, Andras Dr. Hajdu: Hybrid Small Size hpc Resource – HuSSaR, *GPU Day 2017 - The Future of Many-Core Computing in Science*, Budapest, Hungary, **2017**

[2] Laszlo Kovacs, Strakos Petr, and Lubomir Riha: Post processing and 3D visualization for medical images, *11th conference of the Hungarian Association for Image Processing and Pattern Recognition (KÉPAF)*, Sovata, Romania, **2017**

[3] András Hajdu, Henrietta Tomán, László Kovács, Lajos Hajdu: Composing ensembles by a stochastic approach under execution time constraint, *11th conference of the Hungarian Association for Image Processing and Pattern Recognition (KÉPAF)*, Sovata, Romania, **2017**

[4] Laszlo Kovacs, Andras Dr. Hajdu: 3d CT Photorealistic Visualization supported by HPC Coprocessors, *GPU Day 2016 - The Future of Many-Core Computing in Science*, Budapest, Hungary, **2016**

[5] L. Kovacs: Applications of the High Performance Computing in Medical Imaging and Visualization, *The seventh International HPC summer school on HPC Challenges in Computer Sciences (IHPCSS)*, Ljubljana, Slovenia, **2016**.

[6] L. Kovacs: Photorealistic 3D CT visualization supported by HPC GPU and CPU coprocessors, *GPU Day 2016 - The Future Of Many-Core Computing In Science*, Budapest, Hungary, **2016**.

[7] Laszlo Kovacs, HPC GPU/CPU társkártyákkal támogatott fotorealisztikus 3D CT vizualizáció, *Eight Hungarian Conference on Computer Graphics and Geometry*, Budapest, **2016**.

[8] Laszlo Kovacs 3D CT segmentation and Visualization, *PRACE Summer of High Performance Computing, videoconference*, **2015**.

[9] Kovács László, Pintér Ákos: Stirling számok vizsgálata HPC környezetben, *Doktoranduszok Országos Szövetsége - Tavaszi Szél Konferencia*, Eszterházy Károly Főiskola, Eger, Magyarország **2015**.

[10] L. Kovács: *Összetett rendszerek az orvosi képfeldolgozásban*, *10. IT Professional Days of Faculty of Informatics*, University of Debrecen, Debrecen, **2014**.

[11] L. Kovács: Összetett szavazó rendszerek teljesítmény optimalizációja a futási idő paraméter figyelembevételével, *Doktoranduszok Országos Szövetsége - Tavaszi Szél Konferencia*, Debrecen, **2014**

[12] L. Kovacs, A. Hajdu: High Performance Computing with Mathematical Applications, *Winter School of PhD Students in Informatics and Mathematics (WSPS 2013)*, University of Pannonia, Veszprém, Hungary, **2013**.

[13] A. Hajdu, L. Hajdu, A. Jonas, L. Kovacs, H. Toman: Diversity measures for majority voting in the spatial domain, *8th International Conference on Hybrid Artificial Intelligence Systems (HAIS 2013)*, Salamanca, Spain, **2013**

[14] H. Toman, L. Kovacs, A. Jonas, L. Hajdu, A. Hajdu: A generalization of majority voting scheme for medical image detectors, *6th International Conference on Hybrid Artificial Intelligence Systems (HAIS)*, Wroclaw, Poland, **2011**.
[15] L. Kovacs, B. Harangi, B. Nagy, R.J. Qureshi, A. Hajdu: Gráf-alapú vakfolt és sárgafolt detektálás retinaképeken, *Hungarian Association for Image Analysis and Pattern Recognition (KÉPAF)*, Szeged, Hungary, **2011**.
[16] L. Kovacs, B. Nagy: *Látógödör automatikus detektálása digitális retina képeken algoritmusok kombinálásával,* XXX. National Scientific Students' Associations, Information Science and Technology Section, Budapest, Hungary, **2011**.
[17] J. Szakács, L. Kovács, J. Tóth: The test system of the DRSCREEN project, DRSCREEN Workshop, Debrecen, 2011.
[18] Á. Jónás, H. Tomán, L. Kovács, A. Hajdu, R. J. Rashid, L. Hajdu: Generalizing weighted majority voting with applications in fundus images, DRSCREEN Workshop, Debrecen, 2011.
[19] L. Kovács, A. Hajdu: *Összetett Rendszerek az orvosi képfeldolgozásban***,** 6. IT Professional Days of Faculty of Informatics, University of Debrecen, Debrecen, **2011**)
[20] L. Kovacs, R. J. Qureshi, B. Nagy, B. Harangi, A. Hajdu: Graph based detection of optic disc and fovea in retinal images, *4th IEEE International Workshop on Soft Computing Applications (SOFA)*, Arad, Romania, **2010**.
[21] B. Nagy, L. Kovacs, B. Harangi, R. J. Qureshi, A. Hajdu, Automatic detection of the fovea and optic disk in digital retinal images by combining algorithms, 8th *International Conference on Applied Informatics* (*ICAI)*, Eger, Hungary, **2010**.
[22] L. Kovács, B. Nagy, B. Harangi, A. Hajdu: *Combining algorithms for automatic detection of optic disc and macula in fundus images***,** Drscreen workshop Debrecen**, 2010**.
[23] L. Kovács, A. Hajdu: *Összetett Rendszerek az orvosi képfeldolgozásban*, 5. IT Professional Days of Faculty of Informatics, University of Debrecen, Debrecen, **2010**.
[24] Kovács László: *A szem anatómiai részeinek detektálása algoritmusok kombinálásával,* 4. IT Professional Days of Faculty of Informatics, University of Debrecen, Debrecen, **2010**.
[25] L. Kovács, A. Hajdu: *A cukorbetegség szemszövődményeinek szűrésére alkalmas képfeldolgozó rendszer kifejlesztése***,** Kutatók Éjszakája, Debrecen, **2010**
[26] 17th Summer School on Image Processing (SSIP), Debrecen, Hungary.
[27] S. Anita, L. Kovacs: *Web 2.0 a könyvtárakban,* TDK Könyvtártudományi szekció Debrecen, **2010.**
[28] L. Kovács, A. Hajdu: *Combining algorithms for automatic detection of optic disc and macula in fundus images*, 3. IT Professional Days of Faculty of Informatics, University of Debrecen, Debrecen, **2009**.
[29] L. Kovacs, B. Nagy: *Látógödör automatikus detektálása digitális retina képeken algoritmusok kombinálásával,* Scientific Students' Associations, Information Science and Technology Section, Debrecen, Hungary, **2009**.

Science and organizing activities

2008 –	IT Professional Days of Faculty of Informatics, University of Debrecen, Debrecen. Role: organizer.
2011	Informatics in Higher Education Conference
2009	XXIX. National Scientific Students' Associations, Information Science and Technology Section, Debrecen. Role: organizer.
2009	17th Summer School on Image Processing (SSIP), Debrecen, Hungary. Role: organizer.