

## László Kovács

Faculty of Informatics

University of Debrecen, Debrecen, Hungary

[kovacs.laszlo@inf.unideb.hu](mailto:kovacs.laszlo@inf.unideb.hu); [addy.laszlo.kovacs@gmail.com](mailto:addy.laszlo.kovacs@gmail.com)

skype: addy.laszlo.kovacs

mobile: +36/703640817

### Scientific and educational degrees

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

### Other scientific and educational certificates

- 2011 Machine Learning online course, Stanford University
- 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

- 2015 – Assistant Lecturer, Dept. Computer Graphic and Image Processing, Faculty of Informatics, University of Debrecen, Debrecen, Hungary.
- 2013 – PhD candidate at the PhD 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 PhD student at the Faculty of Informatics, University of Debrecen, Hungary.
- 2009 – 2014 Lecturer of High Level Programming Languages Seminar as a Demonstrator, PhD student/candidate.
- 2003 – 2010 Full time student at the University of Debrecen, Debrecen, Hungary (Computer Science, MSC).

### Research projects

- 2015 – 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 month), 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.
- 2013 OTKA, NK101680, Mathematical modelling of clinical observations for improved melanoma detection, role: PhD researcher.
- 2012 – 2013 HURO/1001/283/2.3.1, Cross border academic development of an image-based recommendation system for regional educational purposes, role: PhD 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, PhD researcher.

## Patents

- 2015 Endoscope RGB LED light source with variable wavelength. University of Debrecen Technology Transfer Center, role: inventor, under review (2015)
- 2016 Additional optics equipped internal flashlight illuminator to mobile devices, role: inventor, under review (2016)

## Scholarships, grants and prizes

- 2016 NVIDIA Academic Hardware Grant  
(to support high performance computed medical image processing 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” PhD 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, 3<sup>rd</sup> place: High Performance Computing with Mathematical Applications, Winter School of PhD Students in Informatics and Mathematics (WSPS 2013).
- 2013 – 2014 „János Csere Apáczai” PhD 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

- 2009 – Seminars on Programming (C/C++, Java, Visual Basic)
- 2014 – High Performance Computing Tools (C/C++, Grid Engine, Slurm, OMP, OMPI, OpenCL)

## IT experiences

- server administration (virtualization (XEN server), Linux, Windows)
- programming languages (C++ with additional libraries (Boost, OpenMP, GMP, MPFR), 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] 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**.
- [2] 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**.
- [3] Laszlo Kovacs, HPC GPU/CPU társkártyákkal támogatott fotorealisztikus 3D CT vizualizáció, *Eight Hungarian Conference on Computer Graphics and Geometry*, Budapest, **2016**.
- [4] Laszlo Kovacs 3D CT segmentation and Visualization, *PRACE Summer of High Performance Computing, videoconference*, **2015**.
- [5] Kovács László , Pintér Ákos: Stirling számok vizsgálata HPC környezetben, *Doktoranduszok Országos Szövetsége - Tavaszi Szél Konferencia*, Eszterházy Károly Főiskola, Eger, Magyarország **2015**.
- [6] L. Kovács: *Összetett rendszerek az orvosi képfeldolgozásban*, 10. IT Professional Days of Faculty of Informatics, University of Debrecen, Debrecen, **2014**.
- [7] L. Kovács: Összetett szavazó rendszerek teljesítmény optimalizációja a futási idő paraméter figyelembevételével, *Doktoranduszok Országos Szövetsége - Tavaszi Szél Konferencia*, Debrecen, **2014**
- [8] 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**.
- [9] 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**
- [10] 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**.
- [11] 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**.
- [12] 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**.
- [13] J. Szakács, L. Kovács, J. Tóth: The test system of the DRSCREEN project, DRSCREEN Workshop, Debrecen, 2011.
- [14] 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.
- [15] L. Kovács, A. Hajdu: *Összetett Rendszerek az orvosi képfeldolgozásban*, 6. IT Professional Days of Faculty of Informatics, University of Debrecen, Debrecen, **2011**)
- [16] 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**.
- [17] 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**.
- [18] 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**.
- [19] L. Kovács, A. Hajdu: *Összetett Rendszerek az orvosi képfeldolgozásban*, 5. IT Professional Days of Faculty of Informatics, University of Debrecen, Debrecen, **2010**.

- [20] Kovács László: *A szem anatómiai részeinek detektálása algoritmusok kombinálásával*, 4. IT Professional Days of Faculty of Informatics, University of Debrecen, Debrecen, **2010**.
- [21] L. Kovács, A. Hajdu: *A cukorbetegség szemszövődeményeinek szűrésére alkalmas képfeldolgozó rendszer kifejlesztése*, Kutatók Éjszakája, Debrecen, **2010**
- [22] 17th Summer School on Image Processing (SSIP), Debrecen, Hungary.
- [23] S. Anita, L. Kovacs: *Web 2.0 a könyvtárakban*, TDK Könyvtártudományi szekció Debrecen, **2010**.
- [24] 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**.
- [25] 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.