

## Balázs Harangi Ph.D.

### **Personal Dates**

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### **Professional Experience**

Date: 2016-  
Title: Assistant Professor  
Institution: University of Debrecen, Faculty of Informatics  
Address: 4028 Debrecen, Kassai str. 26.

Date: 2013-2016  
Title: Assistant Lecturer  
Institution: University of Debrecen, Faculty of Informatics  
Address: 4028 Debrecen, Kassai str. 26.

### **Education**

Date: 2010-2013  
Title of qualification: PhD  
Name of organization: Doctoral School of Informatics of the University of Debrecen

Date: 2005-2010  
Title of qualification: Master of Computer Science  
Name of organization: University of Debrecen, Faculty of Informatics

Date: 2001-2005  
Title of qualification: General Certificate of Education  
Name of organization: Tóth Árpád Secondary Grammar School

### **Languages**

- Hungarian (native language)
- English (intermediate level)

### **Professional Experience**

- 2015 - : SCOPIA: Development of software supported clinical devices based on endoscope technology (researcher-developer).
- 2013 – 2015: „FIRST – Future Internet Research Services and Technology” (young researcher-developer)
- 2013: OTKA/NK101680 - Mathematical modeling of clinical observations for improved melanoma detection project (researcher-developer position)
- 2011 – 2013: University of Debrecen, NKTH-INNOCSEKK-7 „A belső szemizmok görcsös állapotát kimutató eszköz prototípusának kifejlesztése” project (researcher-developer position)

- 2009 – 2011: University of Debrecen, DRSCREEN - Developing a computer-based image processing system for diabetic retinopathy screening project (researcher-developer position)
- 2007: Horizont Informatikai Kft. (summer internship)

### **Professional Skills**

- Programming ability in Matlab; Java SE; C; VBA;
- PhotoShop
- Microsoft Office

### **Teaching**

- Seminars on Programming.
- Lectures and seminars on Digital Image Processing.
- Lectures and seminars on Finite Element Modeling

### **Memberships**

- 2010- IEEE member.
- 2010- IEEE Signal Processing Society member.
- 2010- IEEE EMBS member.
- 2008- Hungarian Association for Image Analysis and Pattern Recognition, member.
- 2008- John von Neumann Computer Society, member.

### **Lectures and conferences**

- 2014: 11th IEEE International Symposium on Biomedical Imaging conference, Beijing, China.
- 2013: 10th IEEE International Symposium on Biomedical Imaging conference, San Francisco, USA.
- 2013: 9th Hungarian Association for Image Processing and Pattern Recognition conferences, Bakonybél, Hungary.
- 2012: IEEE International Symposium on Computer-Based Medical System conference, Rome, Italy.
- 2012: 11th Quantitative InfraRed Thermography conference, Naples, Italy.
- 2012: 9th IEEE International Symposium on Biomedical Imaging conference, Barcelona, Spain.
- 2011: 7th International Symposium on Image and Signal Processing and Analysis conference, Dubrovnik, Croatia.
- 2011: 9th IEEE International Symposium on Applied Machine Intelligence and Informatics, Smolenice, Slovakia.
- 2011: 8th Hungarian Association for Image Processing and Pattern Recognition conferences, Szeged, Hungary.
- 2010: 7th IEEE International Symposium on Biomedical Imaging, Rotterdam, Netherland.
- 2010: 17th Summer School on Image Processing, Debrecen, Hungary.
- 2009: 7th Hungarian Association for Image Processing and Pattern Recognition conferences, Budapest, Hungary.

## Scholarships and prizes

- Ph.D student scholarship of TÁMOP-4.2.2B-15/1/KONV-2015-0001 project (2015)
- TÁMOP 4.2.4. A/2-11-1-2012-0001 National Program of Excellence - New Central Europe Young Researcher Scholarship for Hungarian and international students and researchers in convergence regions (2014)
- Campus Hungary – Higher Education Staff Short Term Mobility (2013)
- award of excellent PhD student of Doctoral School of Informatics of the University (2013)
- scholarship of TÁMOP-4.2.4.A/ 2-11/1-2012-0001 „National Excellence Program” (2013)
- scholarship of Universitas Foundation (2013)
- scholarship of Hungarian Intellectual Property Office (2010. június)
- 3rd place at Scientific Students' Associations (November of 2008)
- summer scholarship (July of 2008, July of 2009)
- scholarship of the republic (term of 2008/09, term of 2009/10)
- professional scholarship (term of 2008/09, term of 2009/10)

## Publications

1. B. Harangi, A. Hajdu: Detection of the Optic Disc in Fundus Images by Combining Probability Models, Computers in Biology and Medicine, vol. 65, pp. 10-24, 2015, IF. 1.459.
2. J. Tóth, L. Bartha, T. Szabó, I. Lázár, B. Harangi, A. Hajdu: An Online Application for Storing, Analyzing, and Sharing Dermatological Data, 6th IEEE International Conference on Cognitive Infocommunications, (CogInfoCom 2015), Győr, Hungary, 2015, pp. 339-342.
3. K. Szitha, R. Besenczi, B. Harangi, A. Csutak, A. Hajdu: Automatic Optic Disc and Optic Cup Detection in Retinal Images Acquired by Mobile Phone, Conference of the International Symposium on Image and Signal Processing and Analysis, 9th International Symposium on Image and Signal Processing and Analysis (ISPA 2015), Zagreb, Croatia, 2015, pp. 195-200.
4. J. Toth, L. Kovacs, B. Harangi, Cs. Kiss, A. Mohacsi, Z. Orosz, A. Hajdu: An Online Benchmark System for Image Processing Algorithms, 5th IEEE International Conference on Cognitive Infocommunications (CogInfoCom 2014), Vietri sul Mare, Italy, 2014, pp. 377-382.
5. J. Toth, L. Kovacs, B. Harangi, Cs. Kiss, A. Mohacsi, Z. Orosz, A. Hajdu: An Online System for Algorithm Benchmarking, 5th IEEE International Conference on Cognitive Infocommunications (CogInfoCom 2014), Vietri sul Mare, Italy, 2014, pp. 383.
6. B. Harangi, A. Hajdu: Automatic Exudate Detection by Fusing Multiple Active Contours and Regionwise Classification, Computers in Biology and Medicine, vol. 54, pp. 156-171, 2014, IF. 1.475

7. B. Harangi, A. Hajdu: Detection of Exudates in Fundus Images Using a Markovian Segmentation Model, 36th Annual International Conference of the Engineering in Medicine and Biology Society (EMBC 2014), Chicago, IL, USA, 2014, pp. 130-133.
8. B. Harangi, A. Hajdu: Improving automatic exudate detection based on the fusion of the results of multiple active contours, 10th IEEE International Symposium on Biomedical Imaging (ISBI 2013), San Francisco, CA, USA, 2013, pp. 45-48.
9. B. Harangi, A. Hajdu: Aktív kontúr használatával és régió alapú osztályozással pontosított exudátum detektáló algoritmus, Képfeldolgozók és Alakfelismerők Országos Konferenciája (KEPAF 2013), Bakonybél, Hungary, 2013, pp. 379-392.
10. B. Harangi, I. Lazar, A. Hajdu: Automatic Exudate Detection Using Active Contour Model and Regionwise Classification, 34th Annual International Conference of the Engineering in Medicine and Biology Society (EMBC 2012), San-Diego, CA, USA, 2012, pp. 5951-5954.
11. B. Harangi, B. Antal, A. Hajdu: Automatic Exudate Detection with Improved Naïve-Bayes Classifier, 25th IEEE International Symposium on Computer-Based Medical System (CBMS 2012), Rome, Italy, 2012, pp. 1-4.
12. B. Harangi, B. Nagy, A. Hajdu: Improving the detection of excessive activation of ciliaris muscle by clustering thermal images, 11th Quantitative InfraRed Thermography (QIRT 2012), Naples, Italy, 2012, pp. 1-6.
13. B. Harangi, A. Hajdu: Improving the accuracy of optic disc detection by finding maximal weighted clique of multiple candidates of individual detectors, 9th IEEE International Symposium on Biomedical Imaging (ISBI 2012), Barcelona, Spain, 2012, pp. 602-605.
14. R. J. Qureshi, L. Kovacs, B. Harangi, B. Nagy, T. Peto, A. Hajdu: Combining algorithms for automatic detection of optic disc and macula in fundus images, ELSEVIER Computer Vision and Image Understanding, vol. 116, no. 1, pp 138-145, 2012, IF. 1.232.
15. B. Nagy, B. Harangi, B. Antal, A. Hajdu: Ensemble-based exudate detection in color fundus images, 7th International Symposium on Image and Signal Processing and Analysis (ISPA 2011), Dubrovnik, Croatia, 2011, pp. 700-703.
16. L. Kovacs, B. Harangi, B. Nagy, A. Hajdu, R. J. Qureshi: Gráf alapú vakfolt és sárgafolt detektálás retina felvételeken, Alakfelismerők Társaságának 8. konferenciája (KÉPAF 2011), Szeged, Magyarország, 2011, pp. 329-341.
17. B. Harangi, T. Csordás, A. Hajdu: Detecting the excessive activation of the ciliaris muscle on thermal images, IEEE 9th International Symposium on

Applied Machine Intelligence and Informatics (SAMI 2011), Slovakia, 2011, pp. 329-331.

18. L. Kovacs, R. J. Qureshi, B. Nagy, B. Harangi, A. Hajdu: Graph Based Detection of optic disc and fovea in retinal images, 4th International Workshop on Soft Computing Applications (SOFA 2010), Arad, 15-17 July, 2010, pp. 143-148.
19. B. Harangi, T. Csordás, A. Hajdu: Detecting the excessive activation of the ciliaris muscle on thermal images, 8th International Conference on Applied Informatics (ICAI 2010), Eger, 2010, pp. 449-450 (abstract).
20. R. J. Qureshi, L. Kovacs, B. Nagy, B. Harangi, A. Hajdu: Automatic detection of the fovea and optic disk in digital retinal images by combining algorithms, 8th International Conference on Applied Informatics (ICAI 2010), Eger, pp. 175-184.
21. B. Harangi, R. J. Qureshi, A. Csutak, T. Peto, A. Hajdu: Automatic Detection Of The Optic Disc Using Majority Voting In A Collection Of Optic Disc Detectors, 7th IEEE International Symposium on Biomedical Imaging (ISBI 2010), Rotterdam, The Netherlands, 2010, pp. 1329-1332.
22. Harangi B., Csordás T., Hajdu A.: A ciliaris izom túlzott működésének vizsgálata szomatoinfrával készített képeken, Magyar Képfeldolgozók és Alakfelismerők Társaságának 7. konferenciája (KÉPAF 2009), Budapest, Magyarország, 2009, pp. 1-6.