

CURRICULUM VITAE

Dipl.-Ing. Dr. techn.

YLL HAXHIMUSA



PERSONAL DATA

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change January 26, 2007

EDUCATION

- 1986 - 1990 : High school of Mathematics and Technics, Ferizaj, Kosovë
(average mark 5 out of 5).
- 1990 - 1998 : Graduate studies at University of Prishtina,
Faculty of Electrical and Computer Engineering,
Department of Control and Electronics, Prishtinë, Kosovë
(average mark 9.30 out of 10)
- May 1998 : Diploma Engineer (Dipl.-Ing.) - Master of Sciences (MSc)
with distinction [38].
- 1998 - 1999 : Vorstudienlehrgang der Wiener Universitäten (VWU).
Intensive course of German language.
- 1999 - 2001 : Electrical Engineering, Vienna University of Technology
(average mark 1 out of 1).
- 2001 - 2006 : PhD studies at Vienna University of Technology,
Faculty of Informatics,
Institute of Computer Aided Automation,
Pattern Recognition and Image Processing Group.
(average mark 1 out of 1).
- April 2006 : Doctor of Technical Sciences (Dr. techn.) - DScTech
with distinction [31].
- 2006-2007 : Post doctoral studies at Vienna University of Technology,
Faculty of Informatics,
Institute of Computer Aided Automation,
Pattern Recognition and Image Processing Group.
- 2007-2008 : Post doctoral studies at Purdue University,
Department of Psychological Sciences.

UNIVERSITY STAYS

- March 2007 - March 2008 : West Lafayette, USA, Department of Psychological Sciences,
Purdue University.
- July-September 2005 : Lyon, France, Laboratoire d'InfoRmatique en Images et Systmes
d'information (LIRIS),
Institut National des Sciences Appliques de Lyon (INSA).
- December 2004 : West Lafayette, USA, Department of Psychological Sciences,
Purdue University.
- August 2003 : Bonn, Germany, Summer School on Cognitive Vision,
University of Bonn.

WORKING EXPERIENCE

- 1993 - 1997 : TV, HiFi and Cable-TV Technical Service and Support.
- 1995 - 1998 : Computer Course Lecturer.
- 2001 -2006 : Research assistant
Vienna University of Technology
Faculty of Informatics
Institute of Computer Aided Automation
Pattern Recognition and Image Processing Group
- since 2006 : Senior Researcher
Vienna University of Technology
Faculty of Informatics
Institute of Computer Aided Automation
Pattern Recognition and Image Processing Group

Research

Projects:

- 2001 - 2004 : Image Analysis: Building and Rebuilding Graph Pyramids
under the grant of the Austrian Science Fond GPyr FWF-14445-MAT.
- 2001 - 2004 : Hierarchies of Plane Graphs for the Acquisition, Analysis and Visualization
of Geographic Information
under the grant of the Austrian Science Fond GeoGraph-14662-INF.
- 2004 - 2006 : Cognitive Vision: Hide and Seek
under the grant of the Austrian Science Fond FSP-S9103-N04.
- 2006 - 2007 : Tracking with Structure in Computer Vision
under the grant of the Austrian Science Fond TWIST-CV FWF-P18716-N13.
- 2007 - 2008 : Problem Solving
Supported by the Cognition and Decision Program
of the Air Force Office of Scientific Research.

RESEARCH INTERESTS

Image Understanding, Hierarchical Representations, Image Pyramids, Graph-based Image Analysis, Human Problem Solving, Cognitive Vision, Machine Learning, Neural Networks, Tracking, Video annotation, Discrete Geometry.

TEACHING EXPERIENCE

- 2004 - 2007 : Diploma thesis and Practical project supervisor
- 2005 - 2007 : Lab assistance for the *Image Understanding* course at PRIP.
- Summer Term 2005 : Lab assistance for *Introduction to Pattern Recognition* course at PRIP.
- Winter Term 2004 : Lectured the topic *Graphs in Cognitive Vision* in *Selected Chapter in Cognitive Vision* course at PRIP, 2004.
- Winter Term 2004 : Lectured the topic *Graphen in der Bildanalyse* in *Grundlagen der digitalen Bildverarbeitung* course at PRIP.
- Winter Term 2003 : Lectured *Digital Image Processing* two week intensive course, at the University of Prishtina, Faculty of Electrical Engineering, Department of Computer Engineering.
- Winter Term 2004 : Lab assistance for the *Digital Image Processing* course at PRIP, 2004.
- Winter Term 2003 : Lab assistance for the *Digital Image Processing* course at PRIP, 2003.
- Summer Term 2004 : Lab assistance for *Introduction to Pattern Recognition* course at PRIP, 2004.

MEMBERSHIP

Member of the Technical Committee 15 "Graph-based Representation in Pattern Recognition" - IAPR-TC15.

Member of the Austrian Association for Pattern Recognition - AAPR.

Member of the Austrian Computer Society - OCG

Member of the Verein der Freunde und Förderer der PRIP Aktivitäten - PRIP Club

OTHER SCIENTIFIC ACTIVITIES

Referee -

Journals : Pattern Analysis and Machine Intelligence, Pattern Recognition Letters, Pattern Recognition.

Conferences : ICPR'02,'04,'06, ECCV'04, S+SSPR'04,'06, DAGM'02,'03,'04,'06, CAIP'05, and DGCI'06

Workshops : GBRPR'03,'05,'07 AAPR'02,'03,'04,'06, AWCV'04, and CVWW'02,'03,'04,'06, and IWCV'06.

SKILLS

Managing : Writing Proposals and Administering Scientific Projects
Administering the library of the Lab.

Programming : C/C++, MATLAB, Shell Programming, Fortran, Pascal, Java, HTML.

OS : Unix (BSD), Linux (Debian, SuSe, RedHat),
Windows (9x, NT, 2000, XP).

Publishing : L^AT_EX, T_EX, MsOffice, OOffice.

LANGUAGES

Albanian - mother language.

English and German - excellent.

Croatian, Bosnian and Serbian - excellent.

French - beginner.

Bulgarian, Macedonian - beginner.

HOBBIES

Basketball and Football, Books and Movies, Traveling.

AWARDS

Austrian Association for Pattern Recognition (AAPR) - Best Paper Award 2006 [12].

PUBLICATIONS

Total number of scientific publications: **38**.

BOOKS, REFEREED CHAPTERS IN BOOKS AND JOURNALS

1. Walter G. Kropatsch and Yll Haxhimusa and Zygmunt Pizlo and Georg Langs. **Vision pyramids that do not grow too high**. Pattern Recognition Letters, Volume 26, Issue 3 , pages 319-337, 2005. In Memoriam: Azriel Rosenfeld. Elsevier North-Holland ©.
2. Walter G Kropatsch and Yll Haxhimusa and Pascal Lienhardt. **Hierarchies relating Topology and Geometry**. In Henrik Christensen and Hans-Hellmut Nagel editors, *Cognitive Vision Systems*, Chapter 13 pages 199–220 in Lecture Notes in Computer Science Volume LNCS 3948, 2006, Springer Verlag, Heidelberg.
3. Zygmunt Pizlo, Emil Stefanov, John Saalweachter, Zheng Li, Yll Haxhimusa and Walter G. Kropatsch. **Traveling Salesman Problem: a Foveating Pyramid Model**. Journal of Problem Solving, Volume 1, Issue 1, 2006.
4. Walter G Kropatsch and Yll Haxhimusa and Adrian Ion. **Multiresolution image segmentations in Graph Pyramids**. In Applied Graph Theory in Computer Vision and Pattern Recognition. Abraham Kandel, Horst Horst Bunke, and Mark Last (Eds.). In press.
5. Yll Haxhimusa. **The Structurally Optimal Dual Graph Pyramid and its Application in Image Partitioning**. DISKI series, in press 2006, Akademische Verlagsgesellschaft Aka GmbH, Berlin.

REFEREED PAPERS IN CONFERENCES AND WORKSHOPS

6. Samuel Peltier, Adrian Ion, Yll Haxhimusa, and Walter G. Kropatsch. **Controlling Geometry of Homology Generators**. In the *Proceedings of 12th Computer Vision Winter Workshop*, M. Grabner and H. Grabner (Ed.), February 2007, Austria. Austrian Computer Society.
7. Y. Haxhimusa, A. Ion and W. G. Kropatsch. **Irregular Pyramid Segmentations with Stochastic Graph Decimation Strategies**. In Proceeding of the 11th Iberoamerical Congress on Pattern Recognition, Lecture Notes in Computer Science LNCS 4225, J. F. Martinez-Trinidad et al., pages 277-280, November 2006, Cancun, Mexico.

8. Walter G. Kropatsch, Adrian Ion, Yll Haxhimusa and Thomas Flanitzer. **The Eccentricity Transform (of a digital shape)**. In Proceeding of the 13th International Conference on Discrete Geometry for Computer Imagery, Lecture Notes in Computer Science LNCS 4245, A. Kuba, L.G. Nyul, and K. Palagyi (Eds.), pages 437–448, October 2006, Szeged, Hungary.
9. Yll Haxhimusa, Adrian Ion and Walter G. Kropatsch. **Evaluating Hierarchical Graph-based Segmentation**. In Proceeding of the 18th International Conference on Pattern Recognition, Volume 2, Y. Y Tang, P. Wang, G. Lorette and D. S. Yeung (Eds.), pages 195-198, August 2006, Hong Kong, China.
10. Adrian Ion, Walter G. Kropatsch, and Yll Haxhimusa. **Considerations regarding the minimum spanning tree pyramid segmentation method (Why does it always find the lady?)**. Joint IAPR International Workshop on Structural and Syntactical and Structural Pattern Recognition and Statistical Pattern Recognition (SSPR & SPR), Lecture Notes in Computer Science LNCS 4109, D.-Y. Yeung, J. T. Kwok, A. Fred, F. Roli, D. de Ridder (Eds.), pages 182-190, August 2006, Hong Kong, China.
11. Yll Haxhimusa, Adrian Ion, and Walter G. Kropatsch. **Comparing Hierarchies of Segmentations: Humans, Normalized Cut, and Minimum Spanning Tree**. In the *Proceeding of the 30th Austrian Association for Pattern Recognition Workshop*, F. Lenzen, O.Scherzer and M. Vincze (Eds.), pages 95–103, March 2006, Austria, Österreichische Computer Gesellschaft.
12. Thomas Illetschko, Adrian Ion, Yll Haxhimusa, and Walter G. Kropatsch. **Collapsing 3D Combinatorial Maps**. In the *Proceeding of the 30th Austrian Association for Pattern Recognition Workshop*, F. Lenzen, O. Scherzer and M. Vincze (Eds.), 85–93, March 2006, Austria, **Best Paper Award**. Österreichische Computer Gesellschaft.
13. Thomas Illetschko, Adrian Ion, Yll Haxhimusa, and Walter G. Kropatsch. **Distinguishing the 3 primitive 3D-topological Configurations: Simplex, Hole, Tunnel**. In the *Proceedings of 11th Computer Vision Winter Workshop*, O. Cum and V. Franc (Ed.), pages 22-27, February 2006, Czech Republic. Czech Pattern Recognition Society.
14. Yll Haxhimusa, Adrian Ion, Walter G. Kropatsch and Thomas Illetschko. **Evaluating Minimum Spanning Tree Based Segmentation Algorithms**. In the *Proceeding of the 11th International Conference on Computer Analysis of Images and Patterns*, Lecture Notes in Computer Science LNCS 3891 A. Galalowicz and W. Philips (Eds.), pages 579–586, September 2005, France. Springer Verlag.

15. Yll Haxhimusa, Adrian Ion, Walter G. Kropatsch and Luc Brun. **Hierarchical Image Partitioning using Combinatorial Maps**. In the *Proceeding of the Joint Hungarian-Austrian Conference on Image Processing and Pattern Recognition*, D. Chetverikov, L. Czuni, and M. Vincze (Eds.), pages 179–186, May 2005, Hungary, Österreichische Computer Gesellschaft.
16. Adrian Ion and Yll Haxhimusa and Walter G. Kropatsch. **A Graph-Based Concept for Spatiotemporal Information in Cognitive Vision**. In the *Proceedings of 5th IAPR-TC15 Workshop on Graph-based Representations in Pattern Recognition*, Luc Brun (Ed.), pages 223–232, 11-13 April 2005 Poitiers, France. Springer Verlag.
17. Walter G. Kropatsch and Yll Haxhimusa. **Grouping of Non-connected Structures by an Irregular Graph Pyramid**. In the *Proceedings of the 2nd Iberian Conference on Pattern Recognition and Image Analysis*, Lecture Notes in Computer Science LNCS 3523, J. Marques, and N. P. de la Blanca, and P. Pina (Eds.), pages 107–114, June 2005, Springer Verlag.
18. Adrian Ion, Yll Haxhimusa, Walter G. Kropatsch, and Luc Brun. **Hierarchical Image Partitioning using Combinatorial Maps**. In the *Proceedings of 10th Computer Vision Winter Workshop*, A. Hanbury and H. Bischof (Eds.), pages 43–52, 2-4 February 2005, Zell am der Pram, Austria.
19. Adrian Ion, Yll Haxhimusa and Walter G. Kropatsch. **A Topology-Based Concept for Contraction in Spatiotemporal Space**. In the *Proceedings of 1st Austrian Cognitive Vision Workshop*, M. Zillich and M. Vinze (Eds.), pages 19–26, January 2005, Zell am der Pram, Austria, Österreichische Computer Gesellschaft.
20. Walter G. Kropatsch and Yll Haxhimusa and Z. Pizlo. **Integral Trees: Subtree Depth and Diameter**. In *Proceedings of 10th International Workshop on Combinatorial Image Analysis, IWCI 2004*, R. Klette and J. Zunic (Eds.), Lecture Notes in Computer Science, LNCS 3322, pages 77–87, Auckland, New Zealand, Springer Verlag.
21. Walter G Kropatsch and Yll Haxhimusa. **Hierarchical Grouping of Non-connected Structures**. In Wilhelm Burger and Josef Scharinger, editors, *Proceedings of 28th Austrian Association for Pattern Recognition Workshop*, pages 165–172, Hagenberg, Austria, 2004. Österreichische Computer Gesellschaft.
22. Yll Haxhimusa and Walter G. Kropatsch. **Segmentation Graph Hierarchies**. In the *Proceedings of S+SSPR2004*, In A. Fred and T. Caelli and R. P.W. Duin and A. Campilho and D. de Ridder (Eds.), pages 343–351, Portugal, August 2004, Springer Verlag Heidelberg.

23. Walter G. Kropatsch and Yll Haxhimusa. **Grouping and Segmentation in a Hierarchy of Graphs.** In *Proceedings of 16th IS&T/SPIE Symposium, Computational Imaging II* SPIE Vol 5299, Ch. A. Bouman and E. L. Miller (Eds.), USA, 2004, The International Society for Optical Engineering.
24. Yll Haxhimusa and Walter G. Kropatsch. **Hierarchical Image Partitioning with Dual Graph Contraction.** In the *Proceedings of 25th Pattern Recognition Symposium*, B. Milaelis and G. Krell (Eds.), Lecture Notes in Computer Science, LNCS 2781, pages 338-345, Magdeburg, Germany, 2003, Springer Verlag Heidelberg.
25. Yll Haxhimusa and Walter G. Kropatsch. **Image Partitioning with Graph Pyramids.** In the *Proceedings of 27th Austrian Association for Pattern Recognition Workshop*, C. Beleznai and Th. Schoegl (Eds.), pages 81–88, Laxenburg, 2003. Österreichische Computer Gesellschaft.
26. Yll Haxhimusa, Roland Glantz, and Walter G. Kropatsch. **Constructing Stochastic Pyramids by MIDES - Maximal Independent Directed Edge Set.** In the *4th IAPR-TC15 Workshop on Graph-based Representation in Pattern Recognition*, E. Hancock and M. Vento (Eds.), Lecture Notes in Computer Science, LNCS 2726, pages 35–46, York, UK, June-July 2003. Springer Verlag.
27. Yll Haxhimusa, Roland Glantz, Maamar Saib, Georg Langs, and Walter G. Kropatsch. **Reduction Factors of Image Pyramid on Undirected and Directed Graph.** In *Proceedings of the 7th. Computer Vision Winter Workshop*, H. Wildenauer and W. Kropatsch (Eds.), pages 29–38. PRIP, Vienna University of Technology, 2002.
28. Yll Haxhimusa, Roland Glantz, Maamar Saib, Georg Langs, and Walter G. Kropatsch. **Logarithmic Tapering Graph Pyramid.** In the *Proceedings of 24th Pattern Recognition Symposium*, Luc van Gool (Ed.), Lecture Notes in Computer Science, LNCS 2449 pages 117–124, Swiss, 2002. Springer Verlag.
29. Yll Haxhimusa and Walter G. Kropatsch. **Path Lengths in Sochastic Graph Image Pyramid.** In the *Proceedings of 26th Austrian Association for Pattern Recognition Workshop*, F. Leberl and F. Fraundorfer (Eds.), pages 79–86, Graz, 2002. Österreichische Computer Gesellschaft.
30. Yll Haxhimusa, Maamar Saib, Roland Glantz, and Walter G. Kropatsch. **Equivalent Contraction Kernels Using Dynamic Trees.** In the *Proceedings of the 6th Computer Vision Winter Workshop*, Boštjan Likar (Ed.), pages 267–275, Ljubljana, 2001. Slovenian Pattern Recognition Society.

THESIS AND TECHNICAL REPORTS

31. Yll Haxhimusa. **Structurally Optimal Dual Graph Pyramid and its Application in Image Partitioning**. Vienna University of Technology, Faculty of Informatics, Institute of Computer Aided Automation, Pattern Recognition and Image Processing Group. PhD Thesis.
32. Adrian Ion, Yll Haxhimusa and Walter G. Kropatsch. **A Graph-Based Concept for Spatio-temporal Information in Cognitive Vision**. Technical Report PRIP-TR-98, Vienna University of Technology, Faculty of Informatics, Institute of Computer Aided Automation, Pattern Recognition and Image Processing Group, <http://www.prip.tuwien.ac.at/ftp/pub/publications/trs/tr98.pdf>, December 2005.
33. Walter G. Kropatsch, Yll Haxhimusa and Zygmunt Pizlo. **Integral Trees: Subtree Depth and Diameter**. Technical Report PRIP-TR-92, Vienna University of Technology, Faculty of Informatics, Institute of Computer Aided Automation, Pattern Recognition and Image Processing Group, <http://www.prip.tuwien.ac.at/ftp/pub/publications/trs/tr92.pdf>, September 2004.
34. Yll Haxhimusa and Walter G. Kropatsch. **Hierarchical Image Partitioning with Dual Graph Contraction**. Technical Report PRIP-TR-81, Vienna University of Technology, Faculty of Informatics, Institute of Computer Aided Automation, Pattern Recognition and Image Processing Group, <http://www.prip.tuwien.ac.at/ftp/pub/publications/trs/tr81.pdf>, July 2003.
35. Yll Haxhimusa and Walter G. Kropatsch. **Experimental Results of MIS, MIES, MIDES and D3P**. Technical Report PRIP-TR-78, Vienna University of Technology, Faculty of Informatics, Institute of Computer Aided Automation, Pattern Recognition and Image Processing Group, <http://www.prip.tuwien.ac.at/ftp/pub/publications/trs/tr78.pdf>, January 2003.
36. Yll Haxhimusa and Walter G. Kropatsch. **Reduction Factors of Pyramids on Undirected and Directed Graphs**. Technical Report PRIP-TR-74, Vienna University of Technology, Faculty of Informatics, Institute of Computer Aided Automation, Pattern Recognition and Image Processing Group, <http://www.prip.tuwien.ac.at/ftp/pub/publications/trs/tr74.pdf>, June 2002.
37. Maamar Saib, Yll Haxhimusa, and Roland Glantz. **Dgc_tool: Building Irregular Graph Pyramid Using Dual Graph Contraction**. Technical Report PRIP-TR-69, Vienna University of Technology, Faculty of Informatics, Institute of Computer Aided Automation, Pattern Recognition and Image Processing Group, <http://www.prip.tuwien.ac.at/ftp/pub/publications/trs/tr69.pdf>, February 2002.
38. Yll Haxhimusa. **Rrjetat Neurale për Njohjen e Numrave**. *Master thesis*, supervisor Prof. Dr. Dipl.-Ing. Avni Skeja. University of Prishtina,

Faculty of Electrical Engineering, Department of Control and Electronics,
May 1998, Prishtinë, Kosovë (in Albanian).