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Research interests

- document imaging: large scale workflow-based scanning and document recognition solutions (arts Input (CaptureSuite), Captiva Capture; VBA, XSLT; ABBYY FCE, PROSAR-AIDA, DISPATCHER)
- computer vision, digital image processing, image analysis, texture analysis and synthesis, texture segmentation, texture modeling
- self-similarity in digital images
- probabilistic modeling, analysis, and description of digital images based on Markov random fields with intricate structures of pixel interactions

Education and scientific degree

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| 1991 | PhD, Thesis: "Algorithms for Digital Processing of Images Described by Markov Random Fields" |
| 1987-1990 | PhD student, Glushkov Institute of Cybernetics of the Academy of Sciences of Ukraine, Image Recognition Dept. |
| 1980-1984 | M.S., Dresden University of Technology (Germany), Information Systems Faculty |
| 1978-1980 | Kiev Polytechnic Institute (Ukraine), Computer Science Faculty |

Research and development career

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| since 2006 | Interact Digital AG Zurich |
| 1999-2006 | ETH Zurich, Computer Vision Lab, senior research assistant (1999-2001 - academic guest) |
| 1998-1999 | Catholic University of Leuven, Belgium, Dept. ESAT/Vision for Industry Communications and Services |
| 1997-2001 | International Research and Training Center of Information Technologies and Systems (National Academy of Sciences of Ukraine), Image Recognition Dept., senior research fellow |
| 1984-1997 | Glushkov Institute of Cybernetics (National Academy of Sciences of Ukraine), Image Recognition Dept., senior engineer (1984-1991), research fellow (1991-1997), senior research fellow |

Invited scientist and experience

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| 1999-2001 | ETH Zurich, Computer Vision Lab, multiview texture models |
| 1998-1999 | Catholic University of Leuven, Belgium, Dept. ESAT/Vision for Industry Communications and Services, analysis and synthesis of visually similar textures |

- 1997 Feb.-June University of Limburg, Belgium, Dept. Physics, segmentation of nuclear magnetic resonance images of spinal cord
- 1996 May-1997 Jan. University of Hanover, Germany, Institut fuer Theoretische Nachrichtentechnik und Informationsverarbeitung, development of algorithms and software for segmentation of multi-band air- and SAR images with lineaments
- 1994 May Philips Research Laboratories, Hamburg, Germany, presentation of theoretical results and software for synthesis and segmentation of nuclear magnetic resonance and textured images
- 1994 Feb.-May University of Hanover, Germany, Institut fuer Theoretische Nachrichtentechnik und Informationsverarbeitung, development of algorithms and software for synthesis and segmentation of textured piecewise-homogeneous images

birth place: Kiev (Ukraine) 17.4.1961
 nationality: Swiss
 marital status: married, one child
 languages: Ukrainian, German, English, Russian

References

Prof. Luc Van Gool, ETH Zurich,
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Prof. Georgy Gimel'farb, University of Auckland (New Zealand),
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Publications (chronologically)

1. Gimel'farb G.L., Zalesny A.V. Bayesian Segmentation of Images By Using Markov Fields Models Defined By Gibbs Probability Distributions. In: Proc. of the 3rd All-Union Conf. on Automatic Image Processing Systems (ASOIZ-89), Leningrad, Sept. 24-26, 1989, P.22-23 (in Russian).
2. Gimel'farb G.L., Zalesny A.V. Models of Markov Random Fields in Problems of Generation and Synthesis of Textured Images. In: Means to Intellectualize Cybernetic Systems: Collection of sci. papers. Kiev: Glushkov Institute of Cybernetics, 1989, P.27-36 (in Russian).
3. Gimel'farb G.L., Zalesny A.V. Image Segmentation Based on Models of the Piecewise-Homogeneous Random Fields. In: Proc. of the 4th All-Union Conf. on Mathematical Methods of Pattern Recognition (MMRO-IV), Riga, Oct. 24-26, 1989, Vol. 3.2, P.19-21 (in Russian).
4. Zalesny A.V. Algorithms of Digital Processing of Images Described by Markov Random Fields. Ph.D. Thesis, Academy of Sciences of Ukraine, Institute of Cybernetics, Kiev, 1991, 120p. (in Russian).
5. Gimel'farb G.L., Zalesny A.V. Digital Processing of Images Represented by Markov Random Field Models. Preprint 91-42, ASU, Institute of Cybernetics, Kiev, 1991, 43p. (in Russian).
6. Gimel'farb G.L., Zalesny A.V. Low-Level Bayesian Segmentation of Piecewise-Homogeneous Noisy and Textured Images. International Journal of Imaging Systems and Technology, 1991, Vol.3, no.3, P. 227-243.
7. Gimel'farb G.L., Zalesny A.V. Gibbs Random Fields as Generative Models of Textured Region Maps. In: Proc. of the 1st All-Ukrainian Conf. on Processing of Signals and Images and Pattern Recognition (UkrOBRAZ'92), Kiev, Ukraine, Nov.17-21, 1992, P.62-64 (in Ukrainian).
8. Gimel'farb G.L., Zalesny A.V. Probabilistic Models of Digital Region Maps Based on Markov Fields with Short- and Long-Range Interaction. In: Theoretical and Applied Problems of Image Recognition: Collection of sci. papers. Kiev, Institute of Cybernetics ASU, 1992, P.5-15 (in Russian).
9. Zalesny A.V., Yushakov V.N. Experiments on Image Simulation. Ibid, P.15-26.
10. Gimel'farb G.L., Zalesny A.V. Markov Random Fields with Short- and Long-Range Interaction for Modelling Gray-Scale Textured Images. In: Computer Analysis of Images and Patterns. Proc. of the 5th Int. Conf. (CAIP'93), Budapest, Hungary, Sept. 13-15 1993 (Lecture Notes in Computer Science 719. Springer-Verlag: Berlin, 1993), P. 275-282.

11. Gimel'farb G.L., Zalesny A.V., Kovalevskaya N.M. Probabilistic Approach to Piecewise-Homogeneous Image Segmentation: Joint Model of Image and Region Map. In: Theses of the Sci.-Techn. Conf. of the FSU States on Pattern Recognition and Image Analysis (ROAI-93), Rep. of Belarus, Minsk: Institute of Technical Cybernetics ASB, 1993, P.30-35. (in Russian).
12. Gimel'farb G.L., Zalesny A.V. Gibbs Random Fields with Pairwise Signal Interactions as Image Models. In: Proc. of the Int. Conf. on Probabilistic Models and Processing of Random Signals and Fields, Lvov-Kharkov-Ternopol: Ternopol Institute of Instrument Engineering, 1993, P.44-49 (in Russian).
13. Gimel'farb G.L., Zalesny A.V. Probabilistic Models of Digital Region Maps Based on Markov Random Fields with Short- and Long-Range Interaction. Pattern Recognition Letters, 1993, Vol.14, no.10, P. 789-797.
14. Gimel'farb G.L., Zalesny A.V., Kovalevskaya N.M. Learning from Samples in the Problems of Generating and Segmenting of Textured Piecewise-Homogeneous Images. In: Proc. of the 6th Conf. on Math. Methods of Pattern Recognition (MMRO-VI), Moscow, Nov. 22-26, 1993, MPGU, 1993, P.84-85 (in Russian).
15. Zalesny A.V. Homogeneity & Texture. General Approach. In: Proc. of the 12th IAPR Int. Conf. on Pattern Recognition, ICPR'94, Jerusalem, Israel, Oct. 9-13, 1994, IEEE Computer Society Press: Los Alamitos, Calif., 1994, V.1, P. 525-527.
16. Gimel'farb G.L., Chetverikov D.L., Zalesny A.V. Segmenting Textured Images Modelled by Double-Raster Markov Random Fields with Two- and Fourfold Interactions. In: Proc. of the 8th Symp. on Microcomputer and Microprocessor Applications, Budapest, Hungary, Oct. 12-14 1994. Budapest Technical Univ., Budapest, Hungary, 1994, P. 174-186.
17. Balabanov V., Elmanov S., Zalesny A. Image Segmentation: Comparison of Describing Models and Processing Methodologies. In: Proc. of the 2nd All-Ukrainian Int. Conf. on Processing of Signals and Images and Pattern Recognition (UkrOBRAZ'94), Kiev, Ukraine, Dec.20-24, 1994, Institute of Cybernetics NASU, P.95-99 (in Ukrainian).
18. Gimel'farb G.L., Zalesny A.V. Gibbs Random Fields as Probabilistic Models of Images on the Bottom Level of Computational Vision. In: The Methods of Processing of Random Signals and Fields: Collection of sci. papers. Ulianovsk, Ulianovsk State University of Technology, 1995, P.22-34 (in Russian).
19. Zalesny A.V. Homogeneity and Texture. General Approach. In: Theoretical and Applied Problems of Image Recognition: Collection of sci. papers. Kiev, Institute of Cybernetics ASU, 1995, P.26-38 (in Russian).
20. Vishnevsky V.V., Zalesny A.V., Morozov A.O., Vladimirov V.O., Galahin V.O. Soft-/Hardware Complex for Early Disclosure of Cancer Diseases "Oncotest-1". In: Proc. of the 3d All-Ukrainian Int. Conf. on Processing of Signals and Images and Pattern Recognition (UkrOBRAZ'96), Kiev, Ukraine, 1996, Institute of Cybernetics NASU, P.243-246 (in Ukrainian).
21. Zalesny A. Analysis and Synthesis of Textures With Pairwise Signal Interactions. Tech. rep. N KUL/ESAT/PSI/9902, Catholic University of Leuven, Belgium, 1999, 132p.
22. L. Van Gool, F. Defoort, J. Hug, G. Kalberer, R. Koch, D. Martens, M. Pollefeys, M. Proesmans, M. Vergauwen, A. Zalesny, "Image-based 3D modeling : modeling from reality", Proceedings NATO advanced research workshop on confluence of computer vision and computer graphics, NATO science series - 3. high technology, vol. 84, pp.161-178, August 29-31, 1999, Ljubljana, Slovenia, Leonardis A., Solina F. and Bajcsy R., eds., Kluwer Academic Publishers, 2000.
23. Alexey Zalesny and Luc Van Gool, "A Compact Model for Viewpoint Dependent Texture Synthesis", SMILE 2000 Workshop in conjunction with ECCV 2000, Lecture notes in computer science, Vol. 2018, pp. 124-143, 2001.
24. A. Zalesny and L. Van Gool, "Multiview Texture Models", IEEE Computer Soc. Conf. on Computer Vision and Pattern Recognition CVPR 2001, Vol. 1, pp. 615-622.
25. L. Van Gool, M. Pollefeys, M. Proesmans, A. Zalesny. "THE MURALE PROJECT: IMAGE-BASED 3D MODELING FOR ARCHAEOLOGY", Franco Niccolucci (ed.), Virtual Archaeology Proceedings of the VAST2000 Euroconference held in Arezzo, November 2000. Oxford, Archaeopress, 2002, pp. 53-63 (contrib. to book).
26. J. Cosmas, T. Itagaki, D. Green, E. Grabczewski, L. Van Gool, A. Zalesny, D. Vanrintel, F. Leberl, M. Grabner, K. Schindler, K. Karner, M. Gervautz, S. Hynst, M. Waelkens, M. Pollefeys, R. DeGeest, R. Sablatnig, M. Kampel. "3D MURALE: A Multimedia System for Archaeology". Conf. Virtual Reality, Archaeology, and Cultural Heritage, VAST 2001, 28-23 Nov. 2001, Glyfada, Greece, S. Spencer (ed.), ACM SIGGRAPH, 2002, pp. 297-305.
27. Alexey Zalesny, Dominik Auf der Maur, and Luc Van Gool. "Composite Textures: emulating building materials and vegetation for 3D models", Conf. Virtual Reality, Archaeology, and Cultural Heritage, VAST 2001, 28-23 Nov. 2001, Glyfada, Greece, S. Spencer (ed.), ACM SIGGRAPH, 2002, pp. 179-186, 370.

28. A. Zalesny, D. Auf der Maur, L. Van Gool, "Realistic Textures for VR", Conf. Computer Applications and Quantitative Methods in Archaeology, CAA 2002 "The Digital Heritage of Archaeology", April, 2002, Heraklion, Crete, Greece.
29. Alexey Zalesny, Vittorio Ferrari, Geert Caenen, Dominik Auf der Maur, and Luc Van Gool, "Composite Texture Descriptions", ECCV 2002, LNCS 2352, Vol. 3, pp. 180-194.
30. Alexey Zalesny, Vittorio Ferrari, Geert Caenen, and Luc Van Gool, "Parallel Composite Texture Synthesis", Texture 2002 Workshop in conjunction with ECCV 2002, Proc. published by Heriot-Watt University, pp. 151-155.
31. Geert Caenen, Vittorio Ferrari, Alexey Zalesny, and Luc Van Gool, "Analyzing the layout of composite textures", Texture 2002 Workshop in conjunction with ECCV 2002, Proc. published by Heriot-Watt University, pp. 15-19.
32. L. Van Gool, D. Vandermeulen, G. A. Kalberer, T. Tuytelaars and A. Zalesny, "Modeling Shape and Textures from Images: New Frontiers", Proc. 3D Data Processing, Visualization and Transmission (3DPVT), 2002
33. L. Van Gool, M. Pollefeys, M. Proesmans, A. Zalesny, "MURALE: modelling Sagalassos", A.K.Bowman, J.M. Brady (eds.), Images and Artefacts of the Ancient World, (British Academy / Royal Society, London, 2003) (contrib. to book).
34. A. Zalesny, D. Auf der Maur, R. Paget, M. Vergauwen and L. Van Gool, "Realistic Textures for Virtual Anastylis", IEEE Workshop Applications of Computer Vision in Archaeology, ACVA'03, in conjunction with CVPR 2003, June, 2003.
35. Neubeck, A., Zalesny, A., and Van Gool, L. "Cut-Primed Smart Copying", Texture 2003 Workshop in conjunction with ICCV 2003.
36. Georgy Gimel'farb, Luc Van Gool, and Alexey Zalesny. "To FRAME or not to FRAME in Probabilistic Texture Modelling?" Proc. ICPR 2004, Cambridge UK, II-707-711, 2004.
37. Alexander Neubeck, Alexey Zalesny, and Luc Van Gool. "Viewpoint Consistent Texture Synthesis", Proc. 3D Data Processing, Visualization and Transmission (3DPVT), Thessaloniki, Greece, September, 388-395, 2004.
38. A. Zalesny, V. Ferrari, G. Caenen, and L. Van Gool. *Composite Texture Synthesis*. International Journal of Computer Vision, 62(1/2), 161-176, 2005.
39. A. Neubeck, A. Zalesny, and L. Van Gool, "3D Texture Reconstruction from Extensive BTF Data", Texture 2005 Workshop in conjunction with ICCV, 13-18, 2005.

Name transliterations:

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Old colonial in publications: Алексей Залесный (Alexey Zalesny)