Vladimir Kolmogorov

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Objective

A full-time research position in computer vision

Research interests

Computer vision, graph algorithms, stereo, segmentation, MRF models, parameter estimation

Education

Cornell University, Computer Science Department

Ithaca, NY

1999 - current

- Advisor: Prof. Ramin Zabih
- PhD Candidate (PhD expected: Summer 2003)
- MS in Computer Science (2002)
- GPA: 4.16 / 4

Moscow Institute of Physics and Technology

Russia

1994 - 1999

- MS in Applied Mathematics and Physics
- Thesis title: "Surface Reconstruction of a Moving Object in a Computer Vision System"
- GPA: 5.0 / 5

Professional experience

Siemens Corporate Research, Imaging Department (Intern)

Princeton, NJ

Summer 2000, Summer 2001

- Supervisor: Dr. Yuri Boykov
- Performed an experimental comparison of several maximum flow algorithms on the application to medical images segmentation
- Developed a new maximum flow algorithm which outperforms standard algorithms on many applications in computer vision
- Implemented several approaches to hierarchical memory efficient maximum flow algorithm

Weill Medical College, Department of Radiology (Visiting Research Assistant)

New York, NY

Spring 2001

- Supervisor: Prof. Yi Wang
- Developed a new method for reducing motion artifacts in MRI machines
- Implemented it on the GE Signa 1.5T scanner

Publications

Journals

• Vladimir Kolmogorov, Ramin Zabih. "What Energy Functions can be Minimized via Graph Cuts?", to appear in IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), Special Issue on Energy Minimization Methods in Computer Vision and Pattern Recognition, November 2003.

Conferences

- Junhwan Kim, Vladimir Kolmogorov and Ramin Zabih. "Visual Correspondence Using Energy Minimization and Mutual Information", to appear in International Conference on Computer Vision (ICCV), Nice, France, October 2003.
- Yuri Boykov and Vladimir Kolmogorov. "Computing Geodesics and Minimal Surfaces via Graph Cuts", to appear in International Conference on Computer Vision (ICCV), Nice, France, October 2003.
- Vladimir Kolmogorov, Ramin Zabih. "Multi-camera Scene Reconstruction via Graph Cuts", European Conference on Computer Vision (ECCV), Copenhagen, Denmark, May 2002 (best paper award).
- Vladimir Kolmogorov, Ramin Zabih. "What Energy Functions can be Minimized via Graph Cuts?", European Conference on Computer Vision (ECCV), Copenhagen, Denmark, May 2002 (best paper award).
- Vladimir Kolmogorov, Ramin Zabih. "Computing Visual Correspondence with Occlusions using Graph Cuts", International Conference on Computer Vision (ICCV), Vancouver, Canada, July 2001.

Workshops

- Vladimir Kolmogorov, Ramin Zabih and Steven Gortler. "Generalized Multi-camera Scene Reconstruction using Graph Cuts", to appear in Fourth International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR), Lisbon, Portugal, July 2003.
- Yuri Boykov, Vladimir Kolmogorov. "An Experimental Comparison of Min-Cut/Max-Flow Algorithms for Energy Minimization in Computer Vision", Third International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR), Sophia-Antipolis, France, LNCS 2134, p. 359, Springer, September 2001.

Submitted

• Yuri Boykov, Vladimir Kolmogorov. "An Experimental Comparison of Min-Cut/Max-Flow Algorithms for Energy Minimization in Vision", submitted to IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI).

Medical Imaging

- Vladimir N Kolmogorov, Yi Wang, Richard Watts, Martin R Prince, Ramin Zabih. "An efficient navigator algorithm: Simultaneous Multiple Volume (SMV)", Proc. of International Society for Magnetic Resonance in Medicine, 2002.
- Kolmogorov NK, Watts R, Prince MR, Zabih R, Wang Y. "Motion organized simultaneous acquisition with interactive control (MOSAIC) algorithm for efficient motion suppression", Radiology 211(P), 221, 2001.
- Best Paper Award at the European Conference on Computer Vision, 2002.
- Soros Grant, 1995.
- Second Degree Diploma at the Russian National Olympiad in Physics, 1994.
- Second Degree Diploma at the Russian National Olympiad in Physics, 1993.
- Fourth Degree Diploma at the Russian National Olympiad in Physics, 1993.

Awards

Professional activities

Reviewer for:

- International Conference on Computer Vision, 2001.
- Conference on Computer Vision and Pattern Recognition, 2001.
- Third International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition, 2001.
- IEEE Transactions on Pattern Analysis and Machine Intelligence.
- International Journal of Computer Vision.

References

- Prof. Ramin Zabih, Cornell University, 607-255-8413, rdz@cs.cornell.edu
- Dr. Yuri Boykov, Siemens Corporate Research, 609-734-3623, yuri@scr.siemens.com
- Prof. Yi Wang, Univ. of Pittsburgh, MR Research Center, 412-647-6803, wangy3@msx.upmc.edu
- Dr. Olga Veksler, NEC Research Institute, 609-951-2776, olga@nec-labs.com
- Prof. Steven Gortler, Harvard University, 617-495-3751, sjg@cs.harvard.edu
- Prof. Eva Tardos, Cornell University, 607-255-0984, eva@cs.cornell.edu