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Mikhail Konnik

Education

- 2010-present **Ph.D. in Electrical Engineering (to be submitted on February 2013)**,
The University of Newcastle, Australia,
Subject: Robustness and Control in Adaptive Optics for Astronomical Telescopes,
Supervisors: Dr. James Welsh (the University of Newcastle, Australia), Prof. Peter Schreier (the University of Paderborn, Germany).
- 2000-2006 **M.S. in Physics**, *Moscow Engineering Physics Institute (MEPhI), Russia*,
Subject: Optical Coding and Images Deconvolution using Linear Deconvolution Filters,
Supervisors: Prof. Manykin E.A. (Kurchatov Institute, Russia), Dr. Bykovsky A.Y. (Lebedev Physical Institute, Russian Academy of Sciences), Dr. Starikov S.N. (MEPhI, Russia).

Research Experience

- April 2009 – February 2010 **Senior Engineer**, *Optical Information Processing Lab, MEPhI, Russia*,
Research and development of high dynamic range imaging for optical-digital systems.
- May 2006– April 2009 **Engineer**, *Optical Information Processing Lab, MEPhI, Russia*,
Objects recognition using Hybrid Optical-Digital correlators.

Fellowships and Awards

- 2010 Scholarship for postgraduate studies (PGRSS) from the University of Newcastle, Australia
- 2009 Russian Federal exhibition “Sci-Technical Creativity of Youth” (Certificate of distinction)
- 2009 Moscow Telecommunication Conference Award (Diploma of excellence)
- 2008 UMNİK Fellowship (Russian Federal Fellowship Program for young scientists)
- 2008 Russian Federal exhibition “Sci-Technical Creativity of Youth” (Certificate of distinction)

Professional Participation

- Participation European Machine Vision Association (EMVA) 1288 Standard (Jan-May 2008)
- Membership Society of Photo-optical Instrumentation Engineers (SPIE) Regular Member since 2008.
- Membership IEEE Signal Processing Society Student Member since 2009.

Computer skills

- OS UNIX, Debian GNU/Linux, Windows NT.
- Scientific software MATLAB, GNU/Octave, L^AT_EX, gnuplot, Maple, Maxima, Scilab.
- Related software nip2 / VIPS library, yorick, Doxygen, Subversion, Mercurial, Fossil.
- Programming MATLAB, Python, Perl, Bash.

Fields of Scientific Interest

Image processing	images deconvolution, noise analysis in CCD/CMOS-registered images.
Adaptive Optics	light propagation through turbulent media, wavefront sensing, numerical simulation of adaptive optic systems, optimal control in adaptive optics.

Selected publications

Mikhail V. Konnik, Sergey N. Starikov, and Edward E. Manykin. Application of a commercial digital photo camera as a metering device for spatial light distributions measuring. *Quantum Electronics*, 40(4):314–320, 2010.

Mikhail V. Konnik and Sergey N. Starikov. The use of a consumer grade photo camera in optical-digital correlator for pattern recognition and input scene restoration. *Optics Communications*, Vol. 282, pp 4210-4219, 2009.

Mikhail V. Konnik, Edward A. Manykin, and Sergey N. Starikov. Optical-digital correlator with increased dynamic range using spatially varying pixels exposure technique. *Optical Memory and Neural Networks (Information Optics)*, Vol. 18, No. 2:61–71, 2009.

Evtikhiev N.N., Starikov S.N., **Konnik M.V.**, and Starikov R.S. Investigation of edge detection algorithms for images taken under different registration conditions [in russian]. *Naykoemkie tehnologii (Knowledge-intensive Technologies)*, Vol. 10, No 5:39–43, 2009.

Mikhail V. Konnik and Sergey N. Starikov. Using spatially varying pixels exposure technique for increasing accuracy of the optical-digital pattern recognition correlator. In *Proceedings of SPIE IS&T Electronics Imaging, Intelligent Robots and Computer Vision XXVI: Algorithms and Techniques, Vol.7252:72520V*, 2009.

Sergey N. Starikov, **Mikhail V. Konnik**, Edward A. Manykin, and Vladislav G. Rodin. Linear methods for input scenes restoration from signals of optical-digital pattern recognition correlator. In *Proceedings of SPIE, Defence and Security Symposium, Optical Pattern Recognition XX, Vol. 7340:73400B*, 2009.

Mikhail V. Konnik and Sergey N. Starikov. Enhancing dynamic range of optical-digital correlator using assorted pixels technique. In *Proceedings of Young Optical Scientists Conference (YOSC2009), February 2-7, Moscow, Russia*, 2009.

Konnik M.V. Numerical simulation of images reconstruction with high dynamic range [in russian]. In *Proceedings of 5th Conference "Mathematical Modeling and Boundary value Problems", (Russia, Samara) part 4, pages 88-90*, 2008.

Sergey N. Starikov and **Mikhail V. Konnik**. Using commercial photo camera's raw-based images in optical-digital correlator for pattern recognition. In *Proceedings of SPIE, Defence and Security Symposium, Optical Pattern Recognition XIX, volume 6977:69770R*, 2008.

Konnik M.V. Image's linearization from commercial cameras used in optical-digital systems with optical coding. In *Proceedings of 5th International Conference of young scientists "Optics-2007", Saint-Petersburg, Russia, pages 354–355*, 2007.

Sergey N. Starikov, Nikita N. Balan, **Mikhail V. Konnik**, Vladislav G. Rodin, Ivan V. Solyakin, and Ekaterina A. Shapkarina. Input scene restoration in pattern recognition correlator based on digital photo camera. In *Proceedings of SPIE, Defence and Security Symposium, Optical Pattern Recognition XVIII, volume 6574:65740J*, 2007.

Personal information

Languages **English (IELTS, 7 Overall: 6.5L, 8.5R, 6.0W, 6.0S)**, Russian (native), Esperanto (basic).

Activities and Interests

Technical writer, A blog about Debian GNU/Linux since June 2006 in Russian (in TOP-20 of Russian Internet writers), and a scientific blog in English since August 2008.