

# Igor Markhvida

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## HIGHLIGHTS:

- More than 10-year experience in such fields as biophotonics, image and data analysis, and computer simulation
- Unique combination of photonics knowledge, mathematical background and computer skills.
- Broad experience in design, development, and analysis of systems in a variety of industries: biomedical diagnostics, image analysis, coherent optics, tomography, pulp and paper.
- Experienced in software development and computer simulation. Good knowledge of main modern computer languages, including C/C++, Visual C++, Visual Basic, HTML, JavaScript et el. Experienced in data and image analysis programming.
- Ability to work independently and as a team member. A friendly and creative person. Author of about 60+ papers, two textbooks, 7 patents.

## EDUCATION AND AWARDS

Certified JavaScript, HTML, and XP specialist.

Long-term 2 year research grant F99100 from International Science Foundation (ISF).

Personal research grant from the ISF.

Diploma of Associate Professor, awarded by the Certification Commission of Higher Education Ministry of Belarus.

Ph.D. in physics and mathematics from Belarusian State University.

Postgraduate courses. Institute of Physics, Belarusian Academy of Sciences.

Advanced courses in computing and electronics, Central Statistics Department of Council of Ministry of USSR, Minsk.

Master degree from the Physics Department of the Belarusian State University, Minsk.

## COMPUTER SKILLS

Fluent in key modern computer technologies, web technologies, and image analysis. Developer level in Visual C++, C++/C, MFC, Visual Basic, JavaScript, HTML, Java, and Fortran. Good knowledge of scientific programming (Image Pro Plus, Origin, LabView et al) and graphics/publishing (Corel Draw, Adobe Illustrator/Photoshop, MSPublisher, Dreamweaver, Firework, Flash). Successful projects have been accomplished in computer simulation, image analysis, 3-D visualization, and tomography for medicine, research, education, pulp and paper. Wrote and implemented popular program in education that is used about 11 000 times (and still increasing).

*Demo versions of projects are available upon request.*

## RECENT EMPLOYEMENT HISTORY

2002 – 2004. Pulp and Paper Research Institute of Canada (PAPRICAN), 3800 Wesbrook Mall, Vancouver, BC, V6S 2L9 Canada. **Researcher**

Development of

- image [analysis systems](#) for confocal laser scanning microscopy;
- fluorescence flow cytometry system;
- polarimetry technique to precise measure of fibre wall thickness;
- image analysis software to count particles;
- software for statistical data analysis.

1991 – 2002. Division of Technical Physics, Belarusian State Polytechnic Academy, Minsk, Belarus.

### Associate Professor

A leading Associate Professor in the Robotics and Information Technology Department. Trained about 400 students annually. Delivered lectures in Mechanics, Electricity and Magnetism, Modern Physics, Optics, Atomic Physics, Quantum Mechanics and Biophotonics.

Author of textbooks *HTML, CSS and JavaScript* (publishing house “New Knowledge”, Moscow, 2002) and *Internet* (publishing house “New Knowledge”, Minsk, 2001).

Supervisor of Optics Laboratory. *Leader of project Speckle Measurement in Dentistry.*

Leader of project *Optical Processing in Computer Tomography of Nerve Fibres* (demo version is available upon request).

Leader of project *Educational Software in Optics.* (Demo versions are available upon request).

Principal investigator of long-term research grant F99100 from International Science Foundation (ISF). New laser technique to measure flows was developed and successfully applied to estimate blood microcirculation. Principal investigator in project *Specklometer.*

Developer of advanced [holographic laser interferometric microscope](#) for cell tomography. [Optical properties of nerve fibre](#) were investigated. Development of 3-D art, technical and educational displays.

Double exposure speckle photography technique was adopted to investigate [map of skin deformations.](#)

The technique of [muscle contraction velocity](#) measurement and the technique of optical laser myography (patented) were developed; they were realized in laser device “specklometer”.

More details about accomplished projects can be found on site <http://markoff5.tripod.com>.

## REFERENCES

1. Dr. Ya. Shnir, Zuelpicher Str. 77, Institute for Theoretical Physics, D-50937 Koeln, Germany, University of Cologne. Tel: +49 221 470 4206. E-mail: [shnir@thp.Uni-Koeln.de](mailto:shnir@thp.Uni-Koeln.de).
2. Dr. Val G. Kiselev, Department of Radiological Research, Medical Physics, University Hospital Freiburg, Hugstetterstr. 55, D-79106 Freiburg, Germany, Tel.: +49 761 2707391. Fax: +49 761 2703831. Email: [kiselev@ukl.uni-freiburg.de](mailto:kiselev@ukl.uni-freiburg.de)
3. Dr. Paul Watson, Program Manager, PAPRICAN, 3800 Wesbrook Mall, Vancouver, BC, Canada. Tel. (604) 222-3200
4. Dr. Marina V. Tchepel Scientist, The Metropolitan Executive & Professional Registry, PAPRICAN, 3800 Wesbrook Mall, Vancouver, BC V6S 2L9, Canada, Tel.: 604 - 2223200 ext.308, Email: [mtchepel@paprican.ca](mailto:mtchepel@paprican.ca)

5. Prof. Victor Sevastyanenko. ENECO, scientist, 2847E Common Wealth Ave, Salt Lake City, UT, 84109 USA. Email: [vicsev@usa.net](mailto:vicsev@usa.net)
6. Alex Jirmiaguine. Senior Analyst. UBC, 6356 Agricultural Road, Vancouver, BC, Canada, V6T1Z2, Tel. 604 827 5539, Fax 604 822 5116.

*List of articles is available upon request (<http://markoff5.tripod.com/publications.html>)*