

# CV

## Vladimir S. FONOV PhD

- Born: June 8, 1977
- E-mail: v.s.fonov@ilmarin.info
- Publications (online references):
  - [Google Scholar: http://scholar.google.ca/citations?user=4YCK0vQAAAAJ](http://scholar.google.ca/citations?user=4YCK0vQAAAAJ)
  - [Scopus Author ID: 57188953412](https://scopus.com/authid/detail/authid/57188953412)
  - [orcid.org/0000-0003-3402-7749](https://orcid.org/0000-0003-3402-7749)

## Education

- 1998 Moscow Institute of Physics and Technology (Russia) B.Sc. , Applied Physics & Mathematics
- 1999 Moscow Institute of Physics and Technology (Russia) M.Sc. , Applied Physics & Mathematics
- 2003 Heriot Watt University (UK) Ph.D. , Digital Image Processing & Optical Measurements

## Research interests

- MRI image processing, population studies, non-linear registration

## Work Experience

- Jul 2008 - now McConnell Brain Imaging Centre Montreal Neurological Institute, McGill University (Canada) Research Associate, MRI image processing research
- Jul 2005 - 2008 McConnell Brain Imaging Centre Montreal Neurological Institute, McGill University (Canada) Postdoc, MRI image processing research in NIHPD project.
- Nov 2003 - Jun 2005 Innovative Scientific Solutions Inc (USA) Scientist, optical measurements, PSP software developer Responsibilities: research in new data processing algorithms development of data processing software for optical measurements research of new optical measurement techniques
- 2000 - Oct 2003 Edgewood Technologies Corporation (USA) Software Architect, Algorithm Developer, Researcher Visual C++, OpenGL, Corba, Python, SQL scientific image processing software for PSP, TSP and PIV applications

- 2001 - 2002 E-corner Internet Cafe (UK) Intranet Development Consultant Linux, Exim, NFS, Samba Intranet development support, security advisor, technical support
- 2000 9th Millennium International Symposium on Flow Visualization timetable coordinator - conference schedule and coordination
- 1994 - 1999 Central Aero-hydrodynamic Institute - TsAGI (Russia) C++ Software developer, Visual C++ , Delphi , OpenGL scientific image processing /data acquisition software
- 1993 - 1994 Tver Universal Bank (Russia) C++,Oracle Programmer user interface for banking software in DOS environment

## Awards received

- Second Place on All-Russian Contest on Physics, 1994
- Stirling University Beginners fencing competition, Epee 1st, 2001
- 5th Kyu Ki-Aikido, 2005
- 5th Kyu Aikido-Aikikai, 2006
- 4th Kyu Aikido-Aikikai, 2007
- 3rd Kyu Aikido-Aikikai, 2011
- 2nd Kyu Aikido-Aikikai, 2017

## Languages

- Russian (native), English (fluent), French (a little)

## Publications

### Journals

- Haegelen, C., P. Coupé, V. Fonov, N. Guizard, P. Jannin, X. Morandi and D. Collins (2012). "Automated segmentation of basal ganglia and deep brain structures in MRI of Parkinson's disease." International Journal of Computer Assisted Radiology and Surgery: 1-12.
- Kerbrat, A., B. Aubert-Broche, V. Fonov, S. Narayanan, J. Sled, D. Arnold, B. Banwell and D. Collins (2012). "Reduced head and brain size for age and disproportionately smaller thalami in child-onset MS." Neurology 78(3): 194-201.
- Lewis, J., R. Theilmann, V. Fonov, P. Bellec, A. Lincoln, A. Evans and J. Townsend (2012). "Callosal fiber length and interhemispheric connectivity in adults with autism: Brain overgrowth and underconnectivity." Human Brain Mapping.
- Mercier, L., V. Fonov, C. Haegelen, R. F. Del Maestro, K. Petrecca and D. Collins (2012). "Comparing two approaches to rigid registration of three-dimensional ultrasound and magnetic resonance images for neurosurgery." International Journal of Computer Assisted Radiology and Surgery: 1-12.

- Aubert-Broche, B., V. Fonov, R. Ghassemi, S. Narayanan, D. Arnold, B. Banwell, J. Sled and D. Collins (2011). "Regional brain atrophy in children with multiple sclerosis." *NeuroImage*.
- Coupé, P., S. Eskildsen, J. Manjón, V. Fonov and D. Collins (2011). "Simultaneous segmentation and grading of anatomical structures for patient's classification: Application to Alzheimer's disease." *NeuroImage* 59(4): 3736-47.
- Coupé, P., J. Manjón, V. Fonov, J. Pruessner, M. Robles and D. Collins (2011). "Patch-based segmentation using expert priors: Application to hippocampus and ventricle segmentation." *NeuroImage* 54(2): 940-54.
- Eskildsen, S., P. Coupé, V. Fonov, J. Manjón, K. Leung, N. Guizard, S. Wassef, L. Østergaard and D. Collins (2011). "BEaST: Brain extraction based on nonlocal segmentation technique." *NeuroImage*.
- Fonov, V., A. Evans, K. Botteron, C. Almli, R. McKinstry and D. Collins (2011). "Unbiased average age-appropriate atlases for pediatric studies." *NeuroImage* 54(1): 313-27.
- Schoemaker, D., J. Rowley, R. Soder, F. Carbonell, S. Mohades, V. Sziklas, V. Fonov, A. Dagher, A. Shmuel and A. Evans (2011). "aMCI delay recall performance is associated with white and grey matter abnormalities in the left hippocampal formation: A DTI and cortical thickness study." *Alzheimer's and Dementia* 7(4): S78-S78.
- Caramanos, Z., V. Fonov, S. Francis, S. Narayanan, G. Pike, D. Collins and D. Arnold (2010). "Gradient distortions in MRI: Characterizing and correcting for their effects on SIENA-generated measures of brain volume change." *NeuroImage* 49(2): 1601-11.
- Manjón, J., P. Coupé, A. Buades, V. Fonov, L. Collins and M. Robles (2010). "Non-local MRI upsampling." *Medical image analysis* 14(6): 784-92.
- Mercier, L., V. Fonov, R. Del Maestro, K. Petrecca, L. Ostergaard and D. Collins (2010). "Rigid Registration of 3D Ultrasound and MRI: Comparing Two Approaches on Nine Tumor Cases." *Brain, Body and Machine*: 33-43.
- Yoon, U., V. Fonov, D. Perusse and A. Evans (2009). "The effect of template choice on morphometric analysis of pediatric brain data." *NeuroImage* 45(3): 769-77.
- Gebbie, D., M. Reeder, V. Fonov and J. Crafton (2007). "Lift and drag characteristics of a blended-wing body aircraft." *Journal of aircraft* 44(5): 1409-21.
- Fonov, S., E. Jones, J. Crafton, V. Fonov and L. Goss (2006). "The development of optical techniques for the measurement of pressure and skin friction." *Measurement Science and Technology* 17: 1261.
- Fonov, V., C. Joeckel and I. Grant (2001). "Measurement of simulated convective temperature distribution near ancient wall paintings." *Journal of Visualization* 4(2): 159-67.

## Peer-reviewed conference proceedings

- Coupé, P., S. Eskildsen, J. Manjón, V. Fonov and D. Collins (2011). "Simultaneous Segmentation and Grading of Hippocampus for Patient Classification with Alzheimer's

Disease.” Medical Image Computing and Computer-Assisted Intervention–MICCAI 2011: 149-57.

- Coupé, P., J. Manjón, V. Fonov, J. Pruessner, M. Robles and D. Collins (2010). “Nonlocal patch-based label fusion for hippocampus segmentation.” Medical Image Computing and Computer-Assisted Intervention–MICCAI 2010: 129-36.
- Fonov, V., A. Janke, Z. Caramanos, D. Arnold, S. Narayanan, G. Pike and D. Collins (2010). “Improved precision in the measurement of longitudinal global and regional volumetric changes via a novel MRI gradient distortion characterization and correction technique.” Medical Imaging and Augmented Reality: 324-33.
- Aubert-Broche, B., V. Fonov, I. Leppert, G. Pike and D. Collins (2008). “Human brain myelination from birth to 4.5 years.” Medical Image Computing and Computer-Assisted Intervention–MICCAI 2008: 180-87.
- Fu, L., V. Fonov, G. Pike, A. Evans and D. Collins (2006). “Automated analysis of multi site MRI phantom data for the NIHPD project.” Medical Image Computing and Computer-Assisted Intervention–MICCAI 2006: 144-51.
- Crafton, J., S. Fonov, G. Jones and V. Fonov (2005). “Optical measurements of pressure and shear in a plasma.” AIAA paper no. AIAA-2005-5006.
- Fonov, S., J. Crafton, G. Jones and V. Fonov (2004). Direct Measurements of the Shear Force Fields Using Elastic Polymer Films. 24th AIAA Aerodynamic Measurement Technology and Ground Testing Conference, Portland, Oregon.

## Conference and workshop talks

- Coupé, P., J. Manjón, V. Fonov, S. Eskildsen and D. Collins (2012). Patch-Based Morphometry: Application to Alzheimer’s Disease. Alzheimer’s Association International Conference. Vancouver, Canada.
- Eskildsen, S., J. Manjón, P. Coupé, V. Fonov and D. Collins (2012). Superresolution improves MRI cortical segmentation with FACE. Annual Meeting of the Organization for Human Brain Mapping. Beijing, China.
- Fonov, V., P. Coupé, M. Styner and D. Collins (2012). Automatic lateral ventricle segmentation in infant population with high risk of autism. Annual Meeting of the Organization for Human Brain Mapping. Beijing, China.
- Coupe, P., V. Fonov, S. Eskildsen, J. Manjón, D. Arnold and D. Collins (2011). Influence of the Training Library Composition on a Patch-based label fusion method: Application to Hippocampus Segmentation on ADNI dataset. Alzheimer’s Association International Conference. Paris, France.
- Eskildsen, S., P. Coupé, V. Fonov, L. Ostergaard and D. Collins (2011). Effect of non-local means denoising on cortical segmentation accuracy. Annual Meeting Organization for Human Brain Mapping. Quebec City, Canada.
- Eskildsen, S., V. Fonov, P. Coupe, L. Ostergaard and D. Collins (2011). Prediction of MCI converters in the ADNI cohort using patterns of cortical thinning. Alzheimer’s Association

International Conference. Paris, France.

- Eskildsen, S., V. Fonov, P. Coupé, L. Ostergaard and D. Collins (2011). Prediction of Alzheimer's Disease in Subjects with Mild Cognitive Impairment Using Structural Patterns of Cortical Thinning. 15th Nordic-Baltic Conference on Biomedical Engineering and Medical Physics (NBC 2011). Aalborg, Denmark, Springer Berlin Heidelberg: 156-59.
- Fonov, V., P. Coupe, S. Eskildsen and D. Collins (2011). Atrophy specific MRI brain template for Alzheimer's disease and mild cognitive impairment. Alzheimer's Association International Conference. Paris, France.
- Guizard, N., P. Coupé, V. Fonov, D. Arnold and D. Collins (2011). Robust fusion of Jacobian maps for Deformation-Based Morphometry. Annual Meeting Organization for Human Brain Mapping. Quebec City, Canada.
- Kim, S., V. Fonov, J. Piven, J. Gilmore, C. Vachet, G. Gerig, D. Collins and M. Styner (2011). Spatial intensity prior correction for tissue segmentation in the developing human brain. IEEE International Symposium on Biomedical Imaging: From Nano to Macro. Chicago, USA, IEEE: 2049-52.
- Collins, D. and V. Fonov (2010). Robust automatic segmentation of hippocampus differentiates normal aging from Alzheimer's dementia in the ADNI cohort. Alzheimer's & Dementia: The Journal of the Alzheimer's Association. Honolulu, USA. 6: S15-S15.
- Collins, D. and V. Fonov (2010). Automatic Anatomical Structure Segmentation Predicts Conversion from MCI to Alzheimer's Disease. Alzheimer's & Dementia: The Journal of the Alzheimer's Association. Honolulu, USA. 6: S25-S25.
- Coupé, P., V. Fonov, J. Manjón and D. Collins (2010). Template Construction using a Patch-based Robust Estimator. Annual Meeting of the Organization for Human Brain Mapping. Barcelona, Spain.
- Fonov, V., D. Arnold and D. Collins (2010). Robust automatic segmentation and characterization of lateral ventricle size in the ADNI cohort. Alzheimer's & Dementia: The Journal of the Alzheimer's Association. Honolulu, USA. 6: S15-S15.
- Caramanos, Z., V. Fonov, S. Francis, S. Narayanan, D. Collins and D. Arnold (2009). The effect of head positioning and repositioning on SIENA-generated measures of brain volume change: Results from actual Z-shifts. Alzheimer's & Dementia: The Journal of the Alzheimer's Association.
- Fonov, V., A. Evans, R. McKinstry, C. Almli and D. Collins (2009). Unbiased nonlinear average age-appropriate brain templates from birth to adulthood. Annual Meeting of the Organization for Human Brain Mapping. San-Francisco, USA.
- Fonov, V., I. Lepopert, G. Pike and D. Collins (2009). Voxel-wise T2 relaxometry of Normal Pediatric Brain Development. Annual Meeting of the Organization for Human Brain Mapping. San-Francisco, USA.
- Lee, J., V. Fonov and A. Evans (2009). Mapping cortical thickness of early childhood brain using regression analysis. Annual Meeting of the Organization for Human Brain Mapping. San-Francisco, USA.

- Lee, J., V. Fonov and A. Evans (2009). Mapping brain growth of early childhood using deformation based morphometry. Annual Meeting of the Organization for Human Brain Mapping. San-Francisco, USA.
- Yoon, U., V. Fonov, D. Perusse and A. Evans (2009). The Effect of Age-specific Brain Template on Morphometric Analysis of Pediatric Brain Data. Annual Meeting of the Organization for Human Brain Mapping. San-Francisco, USA.
- Caramanos, Z., V. Fonov, M. Derakhshan, D. Collins, S. Narayanan and D. Arnold (2008). Effects of actual and simulated Z-shifts on freesurfer-segmented whole-brain-tissue, hippocampal, and lateral-ventricle volumes. Alzheimer's & Dementia: The Journal of the Alzheimer's Association.
- Guizard, N., C. Lepage, V. Fonov, H. Hakyemez, A. Evans and C. Limperopoulos (2008). Development of fetus brain atlas from multi-axial MR acquisitions. Proc. Int. Soc. Mag. Reson. Med.(ISMRM'08). Toronto, Canada.
- Fonov, S., L. Goss, E. Jones, J. Crafton and V. Fonov (2006). Identification of pressure measurement system based on surface stress sensitive films. 44th AIAA Aerospace Sciences Meeting. Reno, NV, USA.
- Crafton, J., S. Fonov, E. Jones, V. Fonov, L. Goss and I. Tyler (2005). Simultaneous Measurements of Pressure and Deformation on a UCAV in the SARL. 43rd AIAA Aerospace Sciences Meeting and Exhibit. Reno, NV, USA: 2005.
- Fonov, S., L. Goss, E. Jones, J. Crafton and V. Fonov (2005). Identification of Pressure Measurement Systems based on Surface Stress Sensitive Films and Pressure Sensitive Paints. 21st International Congress on Instrumentation in Aerospace Simulation Facilities, Sendai, Japan, IEEE.
- Fonov, S., L. Goss, E. Jones, J. Crafton, V. Fonov and M. Ol (2005). New Method for Surface Pressure Measurements. 43rd AIAA Aerospace Sciences Meeting and Exhibit. Reno, NV, USA.
- Fonov, V., J. Crafton, L. Goss and S. Fonov (2005). Integrated Data Processing for PSP/TSP/S3F and model deformation measurements. 21st International Congress on Instrumentation in Aerospace Simulation Facilities. Sendai, Japan, IEEE.
- Gebbie, D., M. Reeder, C. Tyler, V. Fonov and J. Crafton (2005). PSP-Based Experimental Investigation of a Blended Wing Body Aircraft. 23rd AIAA Applied Aerodynamics Conference. Toronto, Canada.
- Goss, L., E. Jones, J. Crafton, S. Fonov and V. Fonov (2005). Temperature Compensation for Lifetime-Based Pressure Sensitive Paint Systems. International Congress on Instrumentation in Aerospace Simulation Facilities. Dayton, OH, USA, IEEE.
- Fonov, S., L. Goss, E. Jones, J. Crafton, V. Fonov and M. Ol (2004). Surface Pressure and Shear Force Fields Measurements Using Elastic Polymeric Film. 11th International Symposium on Flow Visualization. Notre Dame, USA.
- Fonov, V., S. Fonov, E. Jones and J. Crafton (2004). Image processing technique for shear-stress optical measurements. 11th International Symposium on Flow Visualization.

University of Notre Dame, Notre Dame, Indiana, USA.

- Fonov, S., J. Crafton, L. Goss, E. Jones and V. Fonov (2001). Near-real-time pressure-field visualization. International Congress on Instrumentation in Aerospace Simulation Facilities. Cleveland, USA, IEEE.

## Thesis

- Fonov, V. (2002). Development and Analysis of Data Processing Methods Applied to Luminescent Coating Systems in Aerodynamics, Heriot-Watt University.

## Open Source Software contributions

- Github profile: [vfonov](#)
- MNI minc-toolkit maintenance: <https://github.com/BIC-MNI/>
- Contributions for MINC integration in
  - Insight Toolkit: <http://www.itk.org/>
  - ANTs: <http://stnava.github.io/ANTs/>
- Embedded software:
  - enhancements in linux kernel module for camera module in mini2440 board: <https://github.com/vfonov/s3c2440camera>
  - port of mjpg-streamer optimized for mini2440 board: <https://github.com/vfonov/mjpg-streamer-mini2440>
  - uIP-based web server on 8bit AVR cpu: <https://github.com/vfonov/uhttpd-avr>
  - lwIP-based web server on 8bit AVR cpu: <https://github.com/vfonov/lwip-avr>
  - low-cost USB JTAG dongle based on 8 bit AVR cpu: <https://github.com/vfonov/openspout-jtag>