

# Darya Shcherbakova



## contact

De Pintelaan 185, Block B  
5th floor  
Ghent, 9000  
Belgium

Darya.Shcherbakova@ugent.be

## personal info

Date of birth: 13 Sep 1989  
Place of birth: Tashkent, USSR  
Citizenship: Russian  
Civil status: Not married

## languages

Russian (mother tongue)  
English (fluent)  
Dutch (B1 level\*)  
German (B1 level\*)  
French (B1 level\*)

\*based on CEF classification

## experience

September 2012–  
Now

### Ghent University

Ghent, Belgium

*PhD researcher*

- FEM simulations in Fluent, Matlab programming, FEA modeling in Abaqus;
- Experience in oral presentations, in writing a funding proposal;
- Supervision of "From Medical Image to Computer Model" course (2012, 2014), supervisor of a Master thesis student (2013);
- Experimental protocol design, conduction of mechanical and ultrasound experiments;
- Extra training: Getting started with High-Performance Computing, Specialist Workshop in Parallel Computing, Advanced Academic English: Conference skills course, Creative Thinking.

August 2011

### Institute of Applied Medical Engineering, Helmholtz-Institute

Aachen, Germany

*Summer Intern*

- Design of algorithms and GUI for detection of minima and maxima of the respiratory cycle for real time applications using C++/CLI;
- Development of the DLL-library for RS-232 serial port communication between breathing detection sensors and MSP430 series microcontroller;

May 2011 – July  
2011

### Institute of Applied Medical Engineering, Helmholtz-Institute

Aachen, Germany

*Research assistant (HiWi)*

April 2011

### Medical Statistics Department at Universitätsklinikum

Aachen, Germany

*Intern*

- Extensive literature research in the field of linear regression models to investigate the goodness of diagnostic plots and statistical tests in residual analysis;
- Simulation in SAS9.1 software in order to compare reliability of diagnostic plots and statistical tests in residual analysis.

## education

September 2011–  
June 2012

**Master Program** in Biomedical Engineering, CEMACUBE Erasmus Mundus program

Ghent University, Ghent

*A multiphysics model of the mouse aorta for the optimization of high-frequency ultrasonic imaging in mice*

- FEM simulations in Fluent, Matlab programming;
- Experience in C++ implementation based on vtk library (C++, STL based);

International MSc in Biomedical Engineering with great distinction.

September 2010–  
August 2011

**Master Program** in Biomedical Engineering, CEMACUBE Erasmus Mundus program

Rheinisch-Westfälische Technische Hochschule, Aachen

Diploma of the International Master of Science in Biomedical Engineering.

September 2006–  
June 2010

**Bachelor** of Science, Biomedical Engineering

Bauman Moscow State Technical University, Moscow

*Development of devices for noninvasive blood circulation diagnostics*

- Analysis of rheograms with self-created Delphi computer program;
- Simulation of transthoracic rheographic signal in MathCAD program;
- Modeling of rheogram signals in Micro-Cap;
- Design of analogue filters for vascular reograph prototype;

**Additional:** Certificate of English translator in the field of Biomedical Engineering.

## awards

October 2013 – **FWO PhD Scholarship** [The Research Foundation - Flanders \(FWO\)](#)  
September 2017 *Seismology in the human body: exploring supersonic shear wave imaging for the assessment of arterial stiffness.*

## communication skills

June 2015 **Oral Presentation** [Artimino Ultrasound Conference, Sweden](#)  
Studying shear wave propagation in arteries: How does arterial anisotropy affect shear wave elastography?

July 2013 **Poster** [Joint UFFC, EFTF, and PFM Symposium, Prague](#)  
Supersonic shear wave imaging to assess arterial anisotropy: ex-vivo testing of the horse aorta

June 2013 **Oral Presentation** [Artimino Ultrasound Conference, Canada](#)  
Experimental investigation of SSI for determination of aortic fibers direction and stretch-induced stiffness of arterial walls

October 2012 **Oral Presentation** [IEEE International Ultrasonics Symposium, Dresden, Germany](#)  
A 3D Multiphysics Model of the (Aneurysmatic) Mouse Aorta for the Development and Validation of Faster High-Frequency Ultrasound Blood Flow Imaging

## publications

“Supersonic Shear Wave Imaging to Assess Arterial Nonlinear Behavior and Anisotropy: Proof of Principle via Ex Vivo Testing of the Horse Aorta”  
D. Shcherbakova, C. Papadacci, A. Swillens, A. Caenen, S. De Bock, V. Saey, K. Chiers, M. Tanter, S. E. Greenwald, M. Pernot, P. Segers  
*Advances in Mechanical Engineering 2014 (2014) pp. 1–12. 2014*

“Development of an experimentally validated numerical tool to assess the accuracy of shear wave elastography”  
A. Caenen, D. Shcherbakova, B. Verhegghe, C. Papadacci, M. Pernot, P. Segers, A. Swillens  
*International Tissue Elasticity Conference, Abstracts (2014). 2014*

“Supersonic shear wave imaging to assess arterial anisotropy: ex-vivo testing of the horse aorta”  
D. Shcherbakova, C. Papadacci, A. Swillens, A. Caenen, V. Saey, S. De Bock, K. Chiers, M. Tanter, M. Pernot, P. Segers  
*proceeding at IEEE International Ultrasonics Symposium (2013) pp. 1545–1548. 2013*

## system skills

### programming:

- Practical background: C, C++, C++/CLI, Delphi. Basic knowledge: Python, Fortran. IDEs: Microsoft Visual Studio, Eclipse
- Microcontrollers embedded systems: IAR Embedded Workbench for ARM, Code Composer Studio Integrated Development Environment

### engineering:

- FEA softwares: Abaqus, Fluent, CalculiX; segmentation softwares: Mimics, vmtk
- Numerical analysis softwares: Matlab, MathCAD, SAS
- Computer-aided design softwares: AutoCAD, Kompas 3D (ASKON, Russia)
- Analog/digital circuit simulator software: Micro-Cap
- OS: Ubuntu Linux, Windows

## interests

**professional:** following Coursera.org courses in programming, algorithm design, self-learning

### personal:

- 2011 Active member of German Red Cross; paramedic.
- Sports: road cycling, athletics; volleyball; swimming. Sports achievements:
  - 2009 – 2011 Member of varsity athletics team at Bauman MSTU;
  - 2011 - 2012 Member of KAA athletics Ghent club;
- Hobbies: learning languages, classical literature, drawing, photography, traveling;