

Darya Shcherbakova

Data Scientist · ML Engineer · Biomedical Research

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Summary

Data scientist / ML engineer with a PhD in biomedical engineering and applied experience leading computer-vision and 3D-modelling products from research prototype to deployed POC. Comfortable spanning data science, product management, and cross-institution research collaboration. Open to roles in FEA, biomedical imaging, applied data science, and ML engineering.

Experience

Career break — parental leave

Jun 2024 – Present

Head of Data Science / Product Manager

2.5 years

AICON.construction — Boston, MA

Dec 2021 – Jun 2024

- Product manager for AICON's flagship construction-analytics product; owned roadmap and shipping cycles across data science, engineering, and design.
- Led a research project across three universities, coordinating cross-institution collaboration to deliver a POC for advanced 3D model-to-camera-image registration.
- Bridged research and product: translated CV research output into deployable features for AICON's edge-cloud pipeline serving construction sites.

Computer Vision / Product

1 year

Balloon Inc. — Ghent, Belgium

2020 – 2021

- Built CV models for construction-tech products, bridging data science, product design, and project management.
- Worked on the spin-off that became AICON, contributing to the first generation of its construction-site CV models.

PhD Researcher — Medical Ultrasound

5+ years

Ghent University — Ghent, Belgium

Sep 2012 – Jan 2018

- Shear-wave elastography in arteries: experimental ultrasound, FEA, and wave-physics derivations in anisotropic media. Awarded a 4-year FWO PhD Scholarship.
- Implemented FEA in Abaqus (Fortran subroutines for OpenMP/MPI HPC); built Matlab GUIs and pipelines for ultrasound image processing and post-processing automation.
- Designed experimental protocols and conducted mechanical + ultrasound experiments on custom PVA phantoms and equine carotid arteries.
- Supervised the “Medical Image to Computer Model” course and a Master's thesis student.

Education

PhD, Biomedical Engineering — Ghent University, Belgium

2012 – 2018

M.Sc. Biomedical Engineering, great distinction — CEMACUBE Erasmus Mundus, Ghent + RWTH Aachen

2010 – 2012

B.Sc. Biomedical Engineering (88/100) — Bauman Moscow State Technical University

2006 – 2010

Skills

Data Science / ML: Python, PyTorch, TensorFlow, OpenCV, computer vision, 3D registration, ML pipelines.

Engineering / FEA: Abaqus (Fortran user subroutines), Fluent, CalculiX, Matlab, MathCAD.

Imaging & Modelling: ultrasound signal processing, segmentation (Mimics, vmtk), AutoCAD, Kompas 3D.

HPC & Tooling: OpenMP, MPI, HPC clusters, Git, Linux/Unix, AWS.

Other languages: C, C++, C++/CLI, Fortran, Delphi.

Spoken: Russian (native), English (fluent), Dutch (fluent), German (B1), French (B1).

Selected Publications — full list on Google Scholar

- **Shcherbakova D.** et al. *A finite element model to study the effect of tissue anisotropy on ex vivo arterial shear wave elastography measurements.* Phys. Med. Biol. 62 (2017) 5245–5275.
- Swillens A., **Shcherbakova D.**, Trachet B., Segers P. *Pitfalls of Doppler measurements for arterial blood flow quantification in small animal research.* Ultrasound Med. Biol. 42 (2016) 1399–1411.
- Caenen A., **Shcherbakova D.** et al. *A versatile and experimentally validated finite element model to assess the accuracy of shear wave elastography in a bounded viscoelastic medium.* IEEE TUFFC 2054 (2015) 439–450.
- **Shcherbakova D.** et al. *Supersonic shear wave imaging to assess arterial nonlinear behavior and anisotropy: ex vivo testing of the horse aorta.* Adv. Mech. Eng. 2014 (2014) 1–12.