



Dr. Gábor Závodszy

Curriculum vitae

Education

- 2015 **PhD**, *Budapest University of Technology and Economics*, Budapest.
Mech. Eng. Fluid Dynamics - Summa cum laude
- 2009-2012 **PhD studies**, *Eötvös Loránd University, Faculty of Science*, Budapest.
Biophysics
- 2004-2009 **Msc**, *Eötvös Loránd University, Faculty of Science*, Budapest.
Informatics-Physicist
- 1996-2004 **General Certificate of Secondary Education**, *Németh László Secondary Grammar School*, Budapest.

Languages

Hungarian	Native	<i>Mother tongue</i>
English	Fluent	
French	Intermediate	

Skills

Scientific proficiency	CFD, Numerical methods, Parallel programming, Statistics	
Programming expertise	C++, CUDA, Python, Matlab	Moderate Fortran, C#, Java, Clojure proficiency
Familiar APIs	OpenMP, MPI, VTK, OpenGL, OpenCV	

Programs and scholarships

- 2014 - (Participating in) Hungarian Brain Research Program
- 2013 - (Participating in) National MOMENTUM Program
- 2012 - HPC Europa2 Scholarship
- 2009 - Eötvös Scholarship

Selected publications

- G. Závodszy, Gy. Károlyi, Gy. Paál, Emerging fractal patterns in a real 3D cerebral aneurysm, *Journal of Theoretical Biology*, 2015, 368 (pp. 95-101.)

- G. Závodszy, Gy. Paál, Validation of a lattice Boltzmann method implementation for a 3D transient fluid flow in an intracranial aneurysm geometry, *Int. J. of Heat and Fluid Flow*, 2013 (pp. 276-283)
- G. Závodszy, Gy. Paál, Numerical investigation of the hemostasis process in transient blood flow, *Biomechanica Hungarica*, VII/2., 2014.

Detailed experience

Academic

- 2015-present **Assistant Professor**, *HDS, BME*, Budapest.
Lectures: Analysis of Technical and Economic Data, Statistical methods, Computational Fluid Dynamics, GPGPU programming.
- 2012–2015 **Assistant lecturer**, *HDS, BME*, Budapest.
Lectures: Computational Fluid Dynamics, GPGPU programming. Exercise lectures: Analysis of Technical and Economic Data
- 2012 **CFD simulation development on an HPC cluster**, *HPC Europa2 scholarship*, Erlangen, Germany.
Lattice Boltzmann based fluid flow simulation on a CRAY XE6 supercomputer.
- 2009–2012 **Haemodynamic fluid flow simulation**, (*PhD study*), *ELTE*.
Numerical bloodflow simulation in complex geometries utilizing GPU processing power.
- 2009 **Quantum gravity model study**, *ELTE*, Budapest.
Numerical simulation of a casual dynamical triangulation model using metropolis montecarlo algorithm on GPU (as part of my MSc thesis).
- 2008 **Avalanche dynamics**, *KFKI*, Csillebérc.
Experimental study of sand and glass avalanches with PIV method.
- 2007 **Visualization of large astronomical databases**, *Virtual Observatory, ELTE*, Budapest.
Graphical processing and representation of large multidimensional datasets.
- 2006 **Brownian motion**, *ELTE*, Budapest.
Experimental measurement of Brownian motion using optical flow algorithms with suspended particles.

Industry

- 2013 **CFD analyst (on contract)**, *GEA EGI*, Budapest.
CFD analysis of large slurry mixers
- 2009-2012 **Researcher (on scholarship)**, *GE - Healthcare*, Budapest.
Hemodynamic analysis of intracerebral aneurysms with heavily parallel (GPU) lattice Boltzmann method.
- 2011 **GPU software developer (on contract)**, *Knorr-Bremse*, Budapest.
Developed real-time GPU based train brake-system simulation.
- 2009-2012 **Interim Lecturer**, *Eötvös Loránd University, Faculty of Science*, Budapest.
GPU programming class lecturer (with focus on CUDA development)
- 2007-2009 **Softwer developer (on contract)**, *MOL, Százhalombatta*.
Development of measurement software for an oil qualification method.