

# Jiří Filipovič

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## Person Identification

Name RNDr. Jiří Filipovič, Ph.D.  
Born 30. 7. 1982 in Hodonín, Czechoslovakia  
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## Education

2013 Ph.D., Faculty of Informatics, Masaryk University  
2011 RNDr., Faculty of Informatics, Masaryk University  
2008 Mgr. (MSc. equiv.), Faculty of Informatics, Masaryk University  
2006 Bc. (BSc. equiv.), Faculty of Informatics, Masaryk University

## Employment Summary

2016 – now senior researcher, Institut of Computer Science, Masaryk University (head of High Performance Computing Research Group)  
2016 – 2017 senior researcher, Research Group Scientific Computing, Faculty of Computer Science, University of Vienna  
2013 – 2016 postdoc, Faculty of Informatics, Masaryk University  
2013 – 2013 researcher, Institut of Computer Science, Masaryk University (joint research with partners, project CERIT-SC)  
2006 – 2013 researcher, CESNET z.s.p.o., (development of grid middleware gLite in projects EGEE II, EGEE III, MetaCentrum and EMI)  
2010 – 2011 activity manager, Faculty of Informatics, Masaryk University (project manager for faculty collaboration with industry)  
2006 – 2011 specialist, National Centre for Biomolecular Research, Faculty of Science (research in haptic molecular docking and acceleration of docking applications)  
2001 – 2004 self-employed, computer games development

## Appreciation of Science Community

2013 Dean's Award for Outstanding Doctoral Thesis  
2012 Joseph Fourier Award in Computer Science (co-organized by France Embassy in Czech Republic and Bull s.r.o.), 1st prize

## Internship

2015 three-months research stay at Research Group Scientific Computing, Faculty of Computer Science, University of Vienna, Austria.

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## Projects

- 2021 – now e-Infrastruktura CZ
- 2018 – 2021 Horizon 2020 EDIReX
- 2018 – 2020 GA MU Pushing the limits in automated NMR structure determination using a single 4D NOESY spectrum and machine learning methods
- 2017 – 2021 OP VVV CERIT-Scientific Cloud
- 2015 – 2018 Horizon 2020 West-life
- 2015 – 2017 Pokročilé hybridní metody studia transportních procesů v proteinech a jejich využití v designu biokatalyzátorů (MUNI/M/1888/2014)
- 2013 – 2015 Employment of Best Young Scientists for International Cooperation Empowerment (no. EE2.3.30.0037)
- 2013 – 2013 CERIT Scientific Cloud (no. ED3.2.00/08.0144)
- 2010 – 2013 Mathematical and Engineering Approaches to Developing Reliable and Secure Concurrent and Distributed Computer Systems (no. GD102/09/H042)
- 2010 – 2013 European Middleware Initiative (EMI, FP 7, no. 261611)
- 2010 – 2013 Rozsáhlé výpočetní systémy: modely, aplikace a verifikace (internal no. MUNI/A/0914/2009)
- 2008 – 2011 Highly Parallel and Distributed Computing Systems (no. MSM0021622419)
- 2006 – 2011 Proteins in metabolism and interaction of organisms with the environment (no. MSM0021622413)
- 2010 – 2011 Platform for cooperation in research and education with FI MU in data processing (no. EE2.4.12.0049)
- 2009 – 2010 Haptická interakce s deformovatelnými tělesy (internal no. MUNI/G/0105/2009) – rector's programme, leader
- 2008 – 2010 Enabling Grids for E-science (EGEE-III, FP 7, no. 222667)
- 2008 – 2010 Optical National Research Network and Its New Applications (no. MSM6383917201)
- 2006 – 2008 Enabling Grids for E-science (EGEE-II, FP 6, no. 031688)

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## Pedagogical Activities

- lecturer PV197 GPU Programming (majority of lectures, from 2009)
- IA039 Supercomputer Architecture and Intensive Computations (2 lectures per semester, from 2010)
- 050044 VU High Performance Computing (University of Vienna, 2 lectures per semester, OpenCL student projects supervision, from 2016)

supervisor consultant of 4 PhD students  
8 finished master thesis, 1 in progress  
13 finished bachelor thesis, 1 in progress

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## Selected Publications

- journals Jiří Filipovič, Jana Hozzová, Amin Nezarat, Jaroslav Olha, Filip Petrovič. Using hardware performance counters to speed up autotuning convergence on GPUs. In *Journal of Parallel and Distributed Computing*. 2021.
- Filip Petrovič, David Střelák, Jana Hozzová, Jaroslav Olha, Richard Trembecký, Siegfried Benkner, Jiří Filipovič. A benchmark set of highly-efficient CUDA and OpenCL kernels and its dynamic autotuning with Kernel Tuning Toolkit. In *Future Generation Computer Systems*. 2020.
- Jaroslav Olha, Jana Hozzová, Jan Fousek, Jiří Filipovič. Exploiting historical data: Pruning autotuning spaces and estimating the number of tuning steps. In *Concurrency and Computation: Practice and Experience*. 2020.
- David Střelák, Jiří Filipovič, Amaya Jiménez-Moreno, Jose María Carazo, Carlos Óscar Sánchez Sorzano. FlexAlign: An Accurate and Fast Algorithm for Movie Alignment in Cryo-Electron Microscopy. In *Electronics*. 2020.
- Jiří Filipovič, Ondřej Vávra, Jan Plhák, David Bednář, Sérgio M. Marques, Jan Brezovský, Luděk Matyska, Jiří Damborský. CaverDock: A Novel Method for the Fast Analysis of Ligand Transport. In *IEEE/ACM Transactions on Computational Biology and Bioinformatics*. 2019.
- Ondřej Vávra, Jiří Filipovič, Jan Plhák, David Bednář, Sérgio M. Marques, Jan Brezovský, Jan Štourač, Luděk Matyska, Jiří Damborský. CaverDock: a molecular docking-based tool to analyse ligand transport through protein tunnels and channels. In *Bioinformatics*. 2019.
- David Střelák, Carlos Óscar S. Sorzano, José María Carazo, Jiří Filipovič. A GPU acceleration of 3-D Fourier reconstruction in cryo-EM. In *The Journal High Performance Computing Applications*. 2019.
- Jiří Filipovič, Matúš Madzin, Jan Fousek, Luděk Matyska. Optimizing CUDA code by kernel fusion: application on BLAS. In *The Journal of Supercomputing Volume 71m Issue 10*. 2015.
- Igor Peterlík, Jiří Filipovič. Distributed Construction of Configuration Spaces for Real-Time Haptic Deformation Modeling. In *IEEE Transactions on Industrial Electronics, Volume 58, Issue 8*. 2011.