



private/contact: born in Warsaw, in 1983, married, father to one son (born 2012)
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skills & experience:

- analytical and numerical **modelling in quantitative sciences**
- **PDE numerics** with applications in geophysics and finance
- physics of the Earth's atmosphere, **airborne measurements & instrumentation**
- cross-platform (Linux, OS/X, Windows), multi-language (C++, C#, Python, Fortran)
- **research software engineering** focused on reusability and maintainability
- free and open-source software development, maintenance and dissemination
- custom **data visualisation**, advanced typesetting (\LaTeX), vector graphics
- public presentations, teaching sciences, **getting things done** and documented

employment:

2017.10 – 2018.09: **AETHON Engineering Consultants, Athens, Greece**
urban transport modelling (EU's H2020 "Innovation Associate" programme)

2015.11 – 2017.09: **Chatham Financial, Cracow, Poland**
financial models software development (C#, .NET, REST)

2013.12 – 2015.10: **Faculty of Physics, University of Warsaw, Poland**
postdoc researcher in the physics of aerosol-cloud interactions,
lead programmer for open-source CFD-related projects (C++, Python, FORTRAN)
lecturer (C++ for first-year undergraduate students)

2002.10 – 2005.12: **Mazovian Governor Office, Warsaw, Poland**
public officer, web/db developer (PHP/SQL)

2000 – 2009: **ITStudio.pl, Warsaw, Poland**
web/db developer (PHP/SQL)

education:

2008 – 2013: **Faculty of Physics, University of Warsaw** – PhD in Physics
thesis: Elements of modern cloud modelling (in English)
supervisor: Hanna Pawłowska, degree obtained on 2013-12-16
referees: Graham Feingold (NOAA, Boulder, USA), Lech Łobocki (Warsaw Tech.)

2002 – 2008: **Faculty of Physics, University of Warsaw** – MSc, 350 ECTS
thesis: Microphysical properties of shallow convective clouds (in Polish)
supervisor: Hanna Pawłowska; degree obtained on 2008-06-25

schools & workshops:

2017-2018: 4×3-day Innovation Management workshops (A.T. Kearney, Germany)

2017: Pedestrian Dynamics workshop (Brown University, Providence, RI)

2017: Young Researchers Workshop on Robust Mathematical Finance (ETH, Zurich)

2017: Workshop on Quantitative Finance (Univ. Milano-Bicocca)

2016: Numerical methods for Hamilton-Jacobi equations (RICAM, Linz)

2014: Workshop on IP, Licensing and Commercialisation (Oxford e-Research Centre)

2014: Workshop on Global Cloud Resolving Modelling (RIKEN, Kobe)

2014: School on Experimental Methodology in Comp. Sci. Research (U. St. Andrews)

2011: School on Atmospheric Water Vapour in the Climate System (Venice Int. Univ.)

2008: School on Aerosols and Climate Change (University of L'Aquila)

2008: School on Physics and chem. of air pollution and their effects (U. Helsinki)

2007: School on Boundary-Layer Research with Airborne Instruments (Iasi, Romania)

2007: School on Formation and growth of atmospheric aerosols (U. Helsinki)

2006: School on Applications with the newest multi-spectral env. satellites (Kraków)

language skills: fluent: **Polish, English**
conversational: Russian, French
basics: Japanese, Spanish

passions: **aviation:** worked as intern at 4 airports, attended 2 Salons du Burget;
visited a dozen of aviation museums from Singapore through Istanbul to Barbados
mountains: skied/hiked in Andorra, Austria, Bosnia, Colorado, Czechia, Faroes, France, Germany, Greece, Iceland, Italy, Japan, Macedonia, Norway, Poland, Romania, Scotland, Slovakia, Slovenia, Spain, Switzerland and Ukraine

- peer-reviewed papers**
- Arabas & Shima 2017:
On the CCN (de)activation nonlinearities
(Nonlin. Proc. Geophys. 24, doi: 10.5194/npg-24-535-2017)
 - Arabas, Jaruga, Pawlowska & Grabowski, 2015:
libcloudph++ 1.0: a single-moment bulk, double-moment bulk, and particle-based warm-rain microphysics library in C++
(Geosci. Model. Dev. 8, doi: 10.5194/gmd-8-1677-2015)
 - Jaruga, Arabas, Jarecka, Pawlowska, Smolarkiewicz & Waruszewski, 2015:
libmpdata++ 1.0: a library of parallel MPDATA solvers for systems of generalised transport equations
(Geosci. Model Dev. 8, doi: 10.5194/gmd-8-1005-2015)
 - Arabas, Jarecka, Jaruga & Fijałkowski, 2014:
Formula Translation in Blitz++, NumPy and Modern Fortran: A Case Study of the Language Choice Tradeoffs
(Sci. Prog. 22, doi: 10.3233/SPR-140379)
 - Arabas & Shima, 2013:
Large-Eddy Simulations of Trade Wind Cumuli Using Particle-Based Microphysics with Monte Carlo Coalescence
(J. Atmos. Sci., doi: 10.1175/JAS-D-12-0295.1)
 - Kulmala, Asmi, Lappalainen et al., 2011:
General overview: European Integrated project on Aerosol Cloud Climate and Air Quality interactions (EUCAARI) – integrating aerosol research from nano to global scales
(Atmos. Chem. Phys., doi: 10.5194/acp-11-13061-2011)
 - Arabas & Pawlowska, 2011:
Adaptive method of lines for multi-component aerosol condensational growth and CCN activation
(Geosci. Model Dev., doi: 10.5194/gmd-4-15-2011)
 - Cairo, Pommereau, Law et al., 2010:
An introduction to the SCOUT-AMMA stratospheric aircraft, balloons and sondes campaign in West Africa, August 2006: rationale and roadmap
(Atmos. Chem. Phys., doi: 10.5194/acp-10-2237-2010)
 - Arabas, Pawlowska & Grabowski, 2009:
Effective radius and droplet spectral width from in-situ aircraft observations in trade-wind cumuli during RICO
(Geosci. Res. Lett., doi: 10.1029/2009GL038257)
- recent e-print**
- Arabas & Farhat 2016:
MPDATA Meets Black-Scholes: Derivative Pricing as a Transport Problem
(arXiv: 1607.01751)
- selected ext. abstracts**
- Coulais, Schellens, Arabas et al., 2012:
Space Missions: Long term preservation of IDL-based software using GDL Astronomical Data Analysis Software and Systems XXI, Paris
(http://aspbooks.org/a/volumes/table_of_contents/?book_id=515)
 - Hoose, Kristjánsson, Arabas et al., 2010
Parameterization of in-cloud vertical velocities for cloud droplet activation calculations in coarse-grid models: Analysis of observations and cloud resolving model results
13th Conference on Atmospheric Radiation, Portland
(http://ams.confex.com/ams/13CldPhy13AtRad/techprogram/paper_170866.htm)
- paper reviews**
- Atmospheric Chemistry and Physics (2014, 2018)
 - Geoscientific Model Development (2014, 2016)
 - J. Advances in Modelling Earth Systems (2015)
 - Proc. Eastern Asia Society for Transportation Studies (2017)
- open-source software:**
- GNU Data Language (contributor, 2009–2014): ~500 C++ commits
 - libmpdata++, libcloudph++ (designer, maintainer, 2013–2015): ~1000 C++ commits
 - vinecopulib (contributor, 2016–2017): ~ 100 C++/Python commits
 - Boost, netCDF, CMake, Debian, GCC...: bug reports, community activity

Sylwester Arabas, Ph.D. | Academic Records | February 2018

fellowships and awards	Foundation for Polish Science (fnp.org.pl): 2014: Mentorship programme (mentor: prof. Harm Jonker, TU Delft) 2012, 2013: START stipend (awarded yearly to ca. 100 young Polish scholars)
funding	Poland's National Science Centre (ncn.gov.pl): 2013-2015: co-author and participant in HARMONIA-type project (ca. \$250 000) 2011-2013: PI in PRELUDIUM-type project (ca. \$15 000) European Facility for Airborne Research (eufar.net): 2008: PI in SEASALT student project (seasalt.igf.fuw.edu.pl) (ca. \$25 000)
internships and field campaigns:	2015: (4 weeks) internship at the Simulation Studies Institute, Hyogo Univ. (Japan) 2012: (4 weeks) internship at the National Center for Atmospheric Research (USA) 2011: (3 weeks) particip. in CARRIBA helicopter measurements campaign (Barbados) 2010: (4 weeks) internship at JAMSTEC/The Earth Simulator Center (Japan) 2008: (3 weeks) EUCAARI aircraft measurements campaign (The Netherlands) 2008: (2 weeks) leadership of the SEASALT aircraft measurements campaign (Austria) 2006: (3 weeks) AMMA stratospheric aircraft measurements campaign (Burkina Faso)
seminars	Dept. of Mathematics and CS, Jagiellonian University, Cracow, Poland (2018) Chemical Engineering Department, University of Patras, Greece (2018) Graduate School for Simulation Studies, University of Hyogo, Japan (2015) Dept. of Atmospheric Sciences, University of Wyoming, Laramie, USA (2015) Faculty of Civil Engineering and Geosciences, TU Delft, The Netherlands (2015) National Center for Atmospheric Research, Boulder, Colorado, USA (2010, 2012, 2014) National Atmospheric and Oceanic Administration, Boulder, Colorado, USA (2012) Meteorological Research Institute, Tsukuba, Japan, (2010) Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan, (2010)
geoscientific conferences	International Conference on Clouds and Precipitation: 2008 (Cancún, talk), 2012 (Leipzig, talk) SIAM Conference on Mathematical and Computational Issues in Geosciences: 2011 (Long Beach, talk), 2013 (Padua, talk) European Geosciences Union General Assemblies (Vienna): 2007 (poster), 2009 (poster), 2010 (poster) American Geophysical Union Fall Meetings (San Francisco): 2010 (poster), 2012 (poster) International Conference on Airborne Research for the Environment: 2010 (Toulouse)
software eng. conferences:	C++Now by Boost & Software Freedom Conservancy (Aspen, Colorado, 2015): talk: https://www.youtube.com/watch?v=bnbZQexvh00 UCAR Software Engineering Assembly Conference (Boulder, Colorado, 2013) talk: https://sea.ucar.edu/conference/2013 FOSDEM (Free & Open Source Software Developers' European Meeting, Brussels): 2010, 2011 (talk), 2012, 2013 (convener), 2014, 2015, 2016, 2017, 2018
teaching	as lecturer at the Faculty of Physics, U. Warsaw: 2015: Programming in C++ (http://www.igf.fuw.edu.pl/~slyoo/teaching) as assistant at the Institute of Geophysics, U. Warsaw: 2011, 2014: Numerical modelling in atmospheric physics 2009, 2010: Atmospheric thermodynamics and cloud physics 2010: Physics of the atmospheric boundary layer 2008, 2009: Hands-on data processing in meteorology
organisation of meetings	"Eulerian/Lagrangian methods for cloud microphysics" (Warsaw, 3 days, 50 people) http://goo.gl/1fj5H8 "A short course on object-oriented numerics" (Ourense, 2014, 3 days, 10 people) http://ephyslab.uvigo.es/numeric/ "FOSS for scientists" (Brussels, 2013, day-long conference session, 100 people) http://archive.fosdem.org/2013/schedule/track/foss_for_scientists/