

Martin Drozdík

Curriculum Vitae

Mariannengasse 21
Vienna, 1090
Austria

+421 948 236 755
✉ drozdik.svk@gmail.com
www.martindrozdik.com



About me

I am a **freelance software developer** from Slovakia. I am currently looking for C++/QT projects in **Vienna, Austria**. I am available from **1-1-2017**.

Key skills

- APPLIED MATHEMATICS Multi-objective optimization, evolutionary computation, computational geometry, algorithm design, graph algorithms, probability theory, statistics.
- C++ **6 years** active experience. Deep interest in best practices and C++11/14. Experience with high-performance code and parallelization.
- QT **3 years** active experience, especially in **GUI** design and implementation.

IT skills

- Operating systems LINUX / UBUNTU / BASH
- Office MERCURIAL, LIBREOFFICE, LATEX, INKSCAPE
- Programming VALGRIND, QMAKE, MATLAB/OCTAVE, SQL, R, EIGEN
- Web development JAVASCRIPT, HTML, CSS

Languages

- | Fluent | Intermediate | Beginner | Native |
|------------|--------------|----------|----------|
| ○ English | ○ Italian | ○ French | ○ Slovak |
| ○ Japanese | ○ German | | ○ Czech |

Professional experience

- 2016
2015 **Software developer**, OM PARTNERS, Antwerp, Belgium,
Developing and maintaining an advanced enterprise planning application. Key technologies: C++, QT, SQL, WINDOWS.
As a part of a 10 member team, using the *agile* methodology we maintained and developed in a shared code base of over 6 million lines of code.

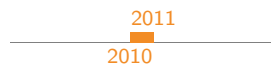


Doctoral student, TANAKA-HERNAN-AKIMOTO LABORATORY,
Shinshu University, Nagano, Japan,
Multi-objective optimization using evolutionary computation.

- Developed a method to keep track of non-dominated individuals (NDI) in the population of an evolutionary multi-objective optimizer after each change to the population. This method performs up to 400 fewer comparisons than the brute force method and works up to 4 times faster than the state-of-the art divide and conquer algorithm (which cannot keep track of NDI at all times).
- Studied:
 - self-adaptation and learning within multi-objective evolutionary algorithms
 - rotational invariance of multi-objective optimizers.
- Developed:
 - high-performance, multi-dimensional, geometric data structures (C++)
 - graphical application to analyze data from numerical experiments (QT)
 - a library of multi-objective evolutionary algorithms (C++).
- Peer reviewed at top journals and conferences (EJOR, IEEE TEVC, GECCO).



Open source project contributor, EIGEN: C++ *linear algebra library*.
Recently my first bug-fix was merged.



Researcher, DOLPHIN TEAM, INRIA, Lille, France,
Exploration of differential evolution parameters (C++/QT).

- Performed numeric experimentation using the Grid5000 cluster computer.
- Analyzed and interpreted tens of GB of data using a single laptop computer.



Programmer, ACCENTURE TECHNOLOGY SOLUTIONS, Vienna, Austria.
Administered IBM mainframe jobs (JCL, ISPF, DB2, PL/I) and wrote technical documentation.



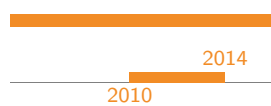
Freelance programmer, MINISTRY OF ENVIRONMENT OF SLOVAKIA,
Bratislava, Slovakia,
Digital archive of news articles.

- Implemented a data entry tool for teammates who classified the articles.
- Designed and implemented an application to browse >2000 pdf files (C++).



Freelance math tutor.

Teaching linear algebra and mathematical analysis, mostly in one on one lessons.



Volunteer, *Initiative to preserve environment in Bratislava old town*.

Helped save the park on Belopotockeho street from being replaced by an apartment building by collecting over 1000 valid petition signatures and participating in legal battles (park.estranky.sk).

Awards and scholarships



Monbukagakusho, *Scholarship of the Japanese Ministry of Education*,
Awarded to two research students from Slovakia annually. Selection based on research plan quality and recommendation from a prospective supervisor from the Japanese side.



IEEE Young Researcher Presentation Award, *IEEE Session*, Niigata.



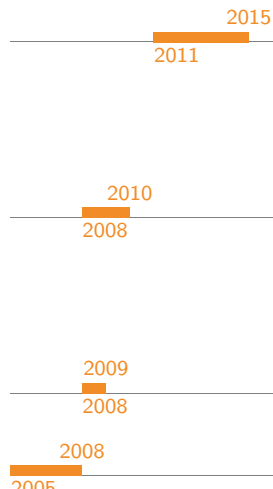
Erasmus, *Full scholarship and tuition for 5 months (University of Pisa)*.

Dean's motivational scholarship, *top 10% of class*, awarded 4 times.

Books that influenced me professionally

Robert C. Martin **Clean Code**
Scott Meyers **Effective C++, Effective Modern C++**
Herb Sutter **Exceptional C++ Style**

Formal education



A horizontal timeline bar with orange segments and labels for the years 2015, 2011, 2010, 2008, 2009, and 2008 (repeated). The segments are connected by thin horizontal lines.

2015
Doctorate, ENGINEERING (COMPUTER SCIENCE),
Department of Mathematics and System Development, Shinshu University,
Nagano, Japan.
Title of thesis : Improvements in Understanding and Performance of Multi-objective
Differential Evolution ➡

2010
Master, APPLIED MATHEMATICS,
Comenius University in Bratislava, Slovakia,
Graduated with honors.
Title of thesis : Stochastic Processes in State Space Form and ML Estimation of
Their Parameters

2009
Erasmus exchange student, MATHEMATICS AND ECONOMICS,
University of Pisa, Italy.

2008
Bachelor, APPLIED MATHEMATICS,
Comenius University in Bratislava, Slovakia,
Graduated with honors.
Title of thesis : Strange Functions in Mathematical Analysis

Major publications

- 2015 M. Drozdik, H. Aguirre, Y. Akimoto, and K. Tanaka
**Comparison of Parameter Control Mechanisms in
Multi-objective Differential Evolution**
Presented at the *Learning and Intelligent Optimization (LION9)* conference,
published in *Lecture Notes in Computer Science*, volume 8994. ➡
- 2014 M. Drozdik, H. Aguirre, Y. Akimoto, and K. Tanaka
**Computational Cost Reduction of
Non-dominated Sorting Using M-front**
In *IEEE Transactions on Evolutionary Computation*. ➡
- 2014 M. Drozdik, K. Tanaka, H. Aguirre, S. Verel, A. Liefvooghe, and B. Derbel
**An Analysis of Differential Evolution Parameters on
Rotated Bi-objective Optimization Functions**
Presented at the *Simulated Evolution and Learning (SEAL2014)* conference,
published in *Lecture Notes in Computer Science*, volume 8886. ➡
- 2013 M. Drozdik, H. Aguirre, and K. Tanaka
**Attempt to Reduce the Computational Complexity in
Multi-objective Differential Evolution Algorithms**
Presented at the *GECCO 2013 conference*, published in *Proceedings of the
15th Annual Conference on Genetic and Evolutionary Computation*. ➡