Ramon Antonio RODRIGES ZALIPYNIS, *curriculum vitae*

www.wikience.org/rodriges/cv_en.pdf

Young scientist and lecturer

Born: 1985 (30 years)

PhD (since 2013)

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CV contents

Antonio Rodriges works with Earth remote sensing data, climate reanalysis data and distributed cluster technologies. In 3.5 years during his PhD course (2010 – 2013) he:

1) Wrote and defended PhD dissertation, devoted to new methods and techniques for accessing large volumes of Earth remote sensing data, their analysis and visualization;

2) Won CRDF Global grant (77,000 US dollars, approx.), which supported (2011 – 2013) the development of Climate Wikience – innovative technology that provides complete production cycle for working with Earth remote sensing data;

3) Developed Climate Wikience – unique hardware-software complex for storage, access, visualization and analysis of large volumes of climate reanalysis and Earth remote sensing data which has no analogues in the world:

Project page: www.wikience.org
Short video (2 minutes) http://youtu.be/-4iQpYewndc
Brochure: http://www.wikience.org/rodriges/brochure_Wikience_A4_v3.pdf
Presentations: http://www.wikience.org/presentations/
Publications: http://www.wikience.org/publications/

4) Copyrighted Climate Wikience and ChronosServer http://www.wikience.org/chronosserver/;

5) Suggested new methods of using air pollution Earth remote sensing data (SO_2, O_3, NO_2, CO, CO_2, aerosol) for solving practical tasks of ecologic assessment (see scientific publications);

6) Developed prototype of unique practical-oriented lecture course on Earth remote sensing data analysis using Climate Wikience and R. Part of the course (video lectures) is freely available online: https://www.youtube.com/user/Wikience/videos (in Russian)
Course content: http://www.wikience.org/rodriges/Rodriges-CourseContent.doc (in Russian)

Education

2013	PhD	Ecologic safety	Ministry of Education of Ukraine
2008	M.S.	Computer Science	Donetsk National Technical University,
2007	B.S.	Computer Science	Ukraine

Poster with results of master's work:
http://www.wikience.org/rodriges/MS/Poster_12_12_2008.pdf (in Russian)

He was awarded University Letter of Commendation for "Excellence in academic progress and active research" (2005).

Positions

2015 –	Associate Professor, Department of Software Engineering, Faculty of Computer Science, National Research University Higher School of Economics, Moscow, Russian Federation http://www.hse.ru/en/staff/rodriges
2014–2015	Senior researcher, Belgorod National Research University, Belgorod, Russia
2013–2014	Associate Professor, computer systems for monitoring dept., computer science and technology faculty, Donetsk National Technical University, Ukraine
2009–2013	Assistant Lecturer, computer systems for monitoring dept., computer science and technology faculty, Donetsk National Technical University, Ukraine
2011–2013	Chief Executive, grant # UKM1-2973-DO-09 from U.S. Civilian Research and Development Foundation (CRDF Global) (please, see "Selected grants and projects" section). Project page: www.wikience.org

Languages

English	Advanced (C1/C2)
Ukrainian	Native
Russain	Native

Selected scientific publications

Ramon Antonio publishes research papers in international and national conferences and peer-reviewed literature, and received 5 best paper awards at international conferences.

Publications in PDF: http://www.wikience.org/publications/ (in English)
Complete list of publications: http://www.wikience.org/rodriges/papers_en.pdf

1. **Rodriges Zalipynis R.A.**, Ivashchuk O.A, Konstantinov I.S. Modern Information Technologies in Environmental Sciences: Climate Wikience // **IEEE** 8th Intl. Conf. on Intelligent Data Acquisition and Advanced Computing Systems (IDAACS) Sept. 24–26, 2015, Warsaw, Poland. (**Scopus**).
2. **Rodriges Zalipynis R.A.,** The place of Ukraine in Europe according to the level of air pollution using Earth remote sensing data, Proceedings of IV All-Ukrainian Congress of Ecologists with International Participation, Vinnytsia, Ukraine, 25 – 27 September, 2013. – 552 pp. – P. 130 – 132.
3. **R.A. Rodriges Zalipynis,** G.V. Averin, Representing actual environmental and climatic parameters for a comprehensive assessment of the state of the environment, National Ecologic Forum «Ecology of Industrial Region», (23 – 24 May 2012) / The Ministry of Ecology and Natural Resources of Ukraine and others – Donetsk, 2012. – 177 pp. – (in 2 volumes, vol. #1). – P. 43 – 44.
4. **R.A. Rodriges Zalipynis,** Methods of distributed execution of analytical queries over large volumes of retrospective geographical data, Proceedings of Southern Federal University. Technical Sciences, Taganrog, Russian Federation – [editor V.G. Zaharevich]., №5 (130), 2012. – 259 pp. – P. 71 – 75.
5. **R.A. Rodriges Zalipynis,** ChronosServer: real-time access to "native" multi-terabyte retrospective data warehouse by thousands of concurrent clients, Proceedings of Donetsk National Technical University. Series: informatics, cybernetics and computing machinery, №14 (188), 2011. – 290 pp. – P. 151 – 161. http://www.wikience.org/chronosserver/

He also was the chairperson of the “Data mining methods” section of the 1st International Conference “Information management systems and computer monitoring” (2010, Donetsk).

Selected grants and projects

1. **Expert**. Analysis and community monitoring of surface water quality in Lugansk region, Small Grants Program of GEF in Ukraine (https://www.sgp.undp.org/), 49,743 USD, 2013–2014, grant issued for NGO «Donets». Project page on UNDP site.
   Monograph based on the results of the project (in Ukrainian):
   http://www.wikience.org/ru/книги/реки-луганской-области/
2. **Chief executive & Architect**, Discovery of synoptic patterns of climate variability and change using data mining and high performance computing, U.S. Civilian Research and Development Foundation (CRDF), 76,780 USD, 2011–2013.
   Rodriges Zalipynis R.A. contribution: developed grant proposal, team lead & project management, carry out key research & development, international communication, grant documentation keeping. **Project page**: http://www.wikience.org
3. **Analyst**, Development of Eco-Monitoring Program of Lugansk Oblast, Lugansk Regional Government, 300 000 UAN, 02/2010 – 12/2010.
4. **Researcher & Developer**, Automated Complex for Meteorological Observations and Environmental Pollution Control, Donetsk Regional Government, 500 000 UAN, 01/2008 – 12/2009. Please, visit Please, visit www.wikience.org/rodriges for publication (in Russian, abstract in English).
5. **Developer,** Database of Budget Organizations for Energy Consumption of Donetsk City, Donetsk Regional Government, 650 000 UAN, 06/2007–12/2009.
6. **Researcher & Developer**, Environment Monitoring System for Donetsk Region, Donetsk Regional Government, 500 000 UAN, 12/2007 – 12/2008.

Selected competitions

1. **3rd prize for Best Scientist** of Donetsk National Technical University (the 95th Solemn Anniversary of the University), **2011**. Received Honorable Letter of Commendation and 20% monthly increment to stipend of PhD studentship during a year.
2. **Won twice** All-Ukrainian Zavtra.UA competition for yearly stipend, in **2008** and **2009**. Zavtra.UA scholarship program (http://www.zavtra.in.ua) is the first Ukrainian privately funded nation-wide initiative for gifted youth support.
3. **1st prize** in All-Ukrainian Research Competition “Informatics, computer science and automation” (**2008**, Sebastopol, Ukraine). This is a highly competitive program under the direction of the Ministry of Education and Science of Ukraine, in which participate all Ukrainian universities.
4. **2nd prize in Microsoft** All-Ukrainian Competition in High Performance Computing Research Projects (**2008**, Kiev, Ukraine).

Information technology skills (main list)

Java
Trainings by Sun Microsystems (Oracle) 2009–2010. Topics: Fundamentals of the Java (TM) Programming Language (SL-110-SE6), Object-Oriented Analysis and Design Using UML (OO-226), Java (TM) Programming Language (SL-275-SE6), Developing GUI with Java based on Swing (DTW-3400), Introduction to XML (DTX-110), Developing Mobile Phone Applications with J2ME (TM) Technology (DTJ-365), Developing Innovative Multimedia JavaFX Applications (DTJ-2510).

In particular, Climate Wikience (www.wikience.org) developed on Java

MPI
Trainings by Microsoft (2008) «MPI Programming with C++, High Performance Computing, and Deploying, Managing, and Maintaining Microsoft (R) Windows (R) Compute Cluster Server 2003.»

In particular, gained knowledge used for winning Microsoft competition in 2008 (see above).

Other programming languages
C++, PHP, Assembler, Visual Basic for Applications, Lisp, Prolog, Delphi
SQL, HTML, JavaScript, Perl

Databases
MySQL, PostgreSQL, MongoDB

Analytical environments
R, Wolfram Mathematica

Servers
THREDDS

Network protocols
ARP, HTTP, WCS, WMS, WFS, OPEnDAP

File formats
GeoTIFF, SHP, netCDF-3,4, HDF-4,5, Grib-1,2, XML, KML, GML GeoJSON

CMS
WordPress

Operating systems
Windows, Linux (Ubuntu)

Technologies
Hadoop
Hazelcast (distributed data strutures)
CVS: TortioseHg (Mercurial), SVN
Maven, Ant, Ivy
Eclipse RCP (Rich Client Platform)
OSGi

Work at university

Higher School of Economics

Course “Geoapplications development” http://rgeo.wikience.org

Donetsk National Technical University

R.A. Rodriges Zalipynis gave lectures and practical classes at the computer systems for monitoring department for students of specialties *computer ecologic and economic monitoring*, *programming of media systems and computer design* and at the applied mathematics and informatics department for students of specialty *software support of automated systems*.

***Courses**:*
Technologies of distributed systems and parallel computing
Algorithm theory and computing processes
Cross-platform programming
Internet technologies and programming of mobile systems
Modern programming technologies
Technologies of software design
Technologies in information security
Methods and techniques in computer information technologies

R.A. Rodriges Zalipynis also supervised research & development of several students at computer systems for monitoring department.

Additional qualifications

12.02.2015 – 14.05.2015 course "Modern Climate Change", University of Missouri, Columbia, USA (professor A. Lupo), internal, exam, certificate № 10201 (link to PDF)

Copyright registrations

Rodriges Zalipynis R.A. «Computer Program Climate Wikience» / certificate of copyright registration № 56360 on 05.09.2014, Ukraine (valid in all countries of Berne Convention)
http://www.wikience.org/

Rodriges Zalipynis R.A. «Computer Program ChronosServer» / certificate of copyright registration № 56359 on 05.09.2014, Ukraine (valid in all countries of Berne Convention)
http://www.wikience.org/chronosserver/

Appendix

Background on previous research

2009–2010
Environment Monitoring System for Donetsk Region (OMOS).
Consists of meteorological (temperature, wind speed and direction, atmospheric pressure, etc.) and pollution (CO, NO2, SO2, CO2, O3) monitoring stations located in major cities of Donetsk Oblast. In addition, water-monitoring stations measure pH, hardness, ionic composition, several bacteria concentrations, etc. Stations range from manual to completely automatic with data flow frequency from weeks to minutes. The software part of the system aggregates and warehouses station data, provides extended visualization and reporting tools.

Responsibilities: architecture and data warehouse design together with the team, query optimization, development of chart drawing algorithms with broad capabilities, reporting module design and development, including output to both HTML and Excel formats.

His reporting and visualization tools are currently in operational use in Donetsk Oblast Regional Governance for Environmental Protection.

Tools used: PHP, MySQL, XML, third-party graphic libraries for PHP.

Database of Budget Organizations for Energy Consumption of Donetsk City
Distributed hardware-software system for monitoring of energy consumption in Donetsk schools for decision support in heating optimization. Donetsk City Executive Committee funds the project. It covers currently 129 schools (out of 520) and aggregates measurements from heat, electricity meters and temperature indicators either from manually delivered records or each 10 minutes (automated schools). The system has sophisticated models of heat loss, tools for research of building thermal balance, rich analytics and reporting modules.

Responsibilities: developed data exchange modules.

His high-class fault-tolerant modules are currently operational in 129 schools of Donetsk City.

Tools used: Visual Basic for Application, COM Automation of MS Outlook, MS Access, RAR archiver, JAVA.

Please, visit http://www.wikience.org/rodriges for publication (in Russian, abstract in English).

2003–2008
He spent a long time in researching graph partitioning algorithms and combinatorial optimization heuristics. His M.S. dissertation proposes new multilevel graph partitioning algorithm implemented with MPI. It achieves up to 42% improvement in partitioning cost for some graphs compared to similar multilevel algorithms of METIS – one of the best graph partitioning software in the world. The algorithm and METIS were tested on graphs from the graph archive of C. Walshaw used worldwide for benchmarking graph partitioning algorithms.

1999–2003
Before university, he researched the problem of schedule creation for educational institutions and studied graph theory algorithms. He developed novel heuristic algorithms for schedule creation and implemented them in software with rich graphical interface. He participated in social and scientific Oblast conferences of Small Academy of Sciences, whose member he was.