Oleksandr Fialko, *PhD*

Curriculum vitae

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ϟ ofialko.github.io

Work experience

Apr 2016 - Present

Research Fellow in Data Science, Center for Social Data Analytics, Auckland University of Technology, Auckland

Data science support on projects in social data analytics, with a focus on building predictive models aimed to prevent child abuse and homelessness.

- Cleaning and processing large administrative data sets with subsequent statistical analysis
- Developing predictive risk modelling using various Machine Learning algorithms and deploying them into production
- Geospatial analysis and data visualization

Mar 2013 – Apr 2016

Physics Researcher, Institute of Natural and Mathematical Sciences, Massey University, Auckland

Independent research on the project "Quantum thermodynamics with the smallest heat engine" funded by the Royal Society of New Zealand.

- Developed numerical codes to model and simulate the project objectives. I extensively used analytical modeling, performed statistical and mathematical analysis of numerical data.
- Published 12 papers in leading peer-reviewed physics journals. Gave 4 invited and 3 contributed talks at physics conferences.
- Co-supervised a PhD student. Coordinated and taught the course "Nonlinear Physics and Chaos", run computer labs using Python.

Sep 2010 – Mar 2013

Postdoctoral fellow, Centre of Theoretical Chemistry and Physics, Massey University, Auckland

Research on the project "Icy tornadoes in the quantum world - Josephson junction of Bose-Einstein condensates" in the group of Prof. Joachim Brand.

- Developed numerical codes to model and simulate the project objectives. I extensively used analytical modeling, performed statistical and mathematical analysis of numerical data.
- Published 6 papers in leading peer-reviewed physics journals. Participated in physics workshops and conferences.
- Co-supervised internship and Masters students, taught physics courses to Massey students.

Oct 2005 – Sep 2010

Research Assistant, University of Augsburg, Germany

Research projects under supervision in the group of Prof. Klaus Ziegler.

- Developed numerical codes to simulate complex quantum systems. I performed numerical and statistical analysis using Monte-Carlo, lowest energy optimization and correlation techniques.
- Published 5 papers in leading peer-reviewed physics journals. Participated in physics workshops and conferences.

Education

2005-2010	**PhD in Physics** (*with distinction*), University of Augsburg, Germany
2004-2005	**Master in Physics** (*with honor*), Kiev National University, Ukraine
2000-2004	**Bachelor in Physics** (*with honor*), Kiev National University, Ukraine

Certified courses

Nov, 2016	**Exploratory Data Analysis**, Johns Hopkins University on Coursera
Nov, 2016	**Practical Machine Learning**, Johns Hopkins University on Coursera
Nov, 2016	**Statistical Inference**, Johns Hopkins University on Coursera
Aug, 2016	**Getting and Cleaning Data**, Johns Hopkins University on Coursera
Jun, 2016	**Machine Learning**, Stanford University on Coursera
Jun, 2016	**Programming in R for Data Science**, Microsoft on EDX
Mar, 2016	**Microsoft SQL Server Implementation and Support**, AMES I.T. Academy, New Zealand

Awards

Dec 2015	NZ$ 25,000 Dodd-Walls Centre New Ideas Research fund
Nov 2013	AU$ 5,000 travel fund to visit the Swinburne University, Melbourne, Australia.
Mar 2013	NZ$ 300,000 Fast-Start Marsden fund administrated by the Royal Society of New Zealand
Nov 2008	€ 6,000 DAAD travel fund to visit the Institute of Physics, Sao Paulo, Brazil

Core skills

- Strong mathematical and computational background, qualitative/quantitative analysis
- Quick to grasp the most advanced abstract ideas, passionate about learning and development
- Self-managed, self-motivated, result-oriented and ambitious with a positive attitude
- Exceptional skills in applying logic and structural approach to problem solving

Software skills

Programming languages:

- Python: Scipy, Numpy, Matplotlib, Seaborn, Pandas, Scikit-learn, Flask
- R: ggplot2, Caret, RStudio, R Markdown, Shiny
- MATLAB, Octave
- Fortran
- C
- Mathematica

Database technologies:

- Transact SQL
- Administering Microsoft SQL Server
- Implementing data warehousing with Microsoft SQL Server (SSIS)
- SQL Server Management Studio
- SQLite, MySQL

Miscellaneous:

- Linux command line language
- HTML5, Bootstrap
- PowerPoint, Word, Excel
- LaTeX, LyX

Independent projects

Building SQL data warehouse
https://github.com/ofialko/Building-SQL-Data-Warehouse

- Used DDL, DML and SQL Server Management Studio for database creation
- Developed SSIS packages to populate tables with data from .csv files and perform incremental update of the database
- Created stored procedures used for encryption and decryption of passwords and credit cards numbers of customers, adding customers, placing orders etc.
- Created views to see order history, orders and products information
- Developed backup strategy and high availability solution

Mining social media with Twitter Streaming API
https://github.com/ofialko/Mining-Pokemon-GO-through-Twitter

- Data collected through Twitter Streaming API Tweepy and stored in a SQLite database
- Data analysis done using SQLite Studio and Pandas
- Visualization done using Matplotlib and Plotly
- Natural Language Processing done with TextBlob

Titanic: Machine Learning from Disaster
https://github.com/ofialko/Titanic-problem

- Analysis done using Jupyter Notebook, Pandas and RStudio
- Visualization done using Matplotlib, Bokeh and ggplot2
- Implemented Random Forest algorithm with the Scikit-learn library
- Built Decision Tree using the caret package

Data analytics with R
https://rpubs.com/fialkool

- Performed several data analysis using R

Website development
http://oleksandrfialko.com

- Built the website using HTML and Bootstrap

Research highlights

https://scholar.google.co.nz/citations?user=YcwrZkoAAAAJhl=en

- O. Fialko and D. Hallwood "Isolated Quantum Heat Engine", Phys. Rev. Lett. 108, 085303 (2012)
  For this project I was awarded very prestigious Fast-Start Marsden fund worth of NZ $ 300.000 with success rate less than 10%.