Curriculum vitae

Mateusz Staniak

1 Education

4. PhD studies in Mathematics, University of Wrocław (November 2019 – currently).
3. PhD studies in Computer Science, Warsaw University of Technology, 2018-2019 (unfinished due to personal reasons).
2. Magister (MSc equivalent) in Mathematics, University of Wrocław, 2018, final grade: 5.
1. Licencjat (BSc equivalent) in Mathematics, University of Wrocław, 2016, final grade: 5.

2 Employment (academic)

4. Software engineer in Olga Vitek's Lab (Northeastern University), *MSstats and Cardinal: Next Generation Statistical Mass Spectrometry in R* grant from Chan Zuckerberg Initiative, February 2020 - January 2021.
3. Research assistant at the University of Wrocław - NCN grant 2016/23/B/ST1/00454 *Model selection for high dimensional data with SLOPE method - theoretical properties and applications* (PI: prof. Małgorzata Bogdan), October 2019 - August 2020.
2. Research assistant at the Warsaw University of Technology - NCN grant 2016/21/B/ST6/02176 *MLGenSig: Machine Learning Genetic Signatures* (PI: prof. Przemysław Biecek), December 2018 - May 2019.
1. Research assistant at the University of Wrocław - FNP grant Powroty/2016-1/2 *First order Kendall maximal autoregressive processes and their applications* (PI: Barbara Jasiulis-Gołdyn, PhD), November 2016 - July 2018.

3 Publications

3. Markiewicz et al., 2020, *Allogeneic hematopoietic stem cell transplantation for paroxysmal nocturnal hemoglobinuria–multicenter analysis by Polish Adult Leukemia Group*, Biology of Blood and Marrow Transplantation.

2. Staniak and Biecek, 2019, *The Landscape of R Packages for Automated Exploratory Data Analysis*, The R Journal 11:2.

1. Staniak and Biecek, 2018, *Explanations of Model Predictions with live and breakDown Packages*, The R Journal 10:2.

3.1 Preprints

2. Sobczyk et al., 2020, *VARCLUST: clustering variables using dimensionality reduction*, arXiv e-prints arXiv:2011.06501.

1. Jasiulis-Gołdyn and Staniak, 2019, *Fluctuations of extremal Markow chains of the Kendall type*, arXiv e-prints arXiv:1902.00576.

4 Funding

3. PI in the National Science Center, Poland grant PRELUDIUM 2020/37/N/ST6/04070 *Protein inference and quantification: a regularization approach* awarded in 2020 (author of the grant application).

2. BOF 2020 BILA grant for the bilateral cooperation (joint PhD) between Hasselt University and University of Wrocław, awarded by the Hasselt University in 2020 (co-author of the grant application).

1. Travel grant for a visist at the Northeastern University under the PROM programme at the University of Wrocław, 2020.

5 Research visits and internships

5.1 Internships

3. Summer internship at Donostia International Physics Center, San Sebastian (Spain), July - September 2019. Topic: *Machine Learning for predicting geometrical properties of nanoparticles from optical spectra*, supervisor: Marek Grzelczak, PhD.

2. Summer internship at the Faculty of Mathematics and Information Science, Warsaw University of Technology (Poland), July 2017. Topic: *Local interpretability of machine learning models*, supervisor: Przemysław Biecek, PhD.

1. Summer internship at the Faculty of Mathematics and Information Science, Warsaw University of Technology (Poland), July - August 2016. Topic: *Visualizing the results of PISA studies*, supervisor: Przemysław Biecek, PhD.

5.2 Research visits

5. 9 - 13 December 2019: research visit at the Hasselt University. Topic: *Shared peptides for protein quantification.*

4. 10 - 23 November 2019: research visit at the Northeastern University in Olga Vitek's lab. Topic: *Post-translational modifications in TMT-based protein quantification.*

3. 8 - 19 July 2019: research visit at the Hasselt University. Topic: *Shared peptides for protein quantification.*

2. 19 - 23 March 2018: research visit at the Warsaw University of Technology. Topic: *Kendall random walks.*

1. 26 - 31 March 2017: research visit at the Warsaw University of Technology. Topic: *Laws of large numbers for Kendall random walks.*

5.3 Small research projects

4. Evaluation of statistical methods for Hydrogen-Deuterium Exchange Mass Spectrometry at the Institute of Biochemistry and Biophysics, Polish Academy of Sciences, June - September 2019.

3. R implementation of a method of generating explanations for Machine Learning models (CRAN package localModel) as a part of the NCN 2017/27/B/ST6/01307 grant (*DALEX*), October - November 2018.

2. Medical and environmental data analysis at University of Warsaw (NCBiR grant POIR.01.01.01-00-0328/17 in collaboration with LekSeek sp. z.o.o.).

1. Medical and environmental data analysis in a project conduncted for FarData sp. z.o.o.

6 Talks and posters

6.1 Invited talks

1. *Interpretable Features for Local Explanations of Machine Learning Models* talk given in the Artificial Intelligence Seminar at the Faculty of Computer and Information Science, University of Ljubljana (Slovenia), May 2019.

2. *Local Interpretability of Machine Learning Models* talk given at a Bioinformatics research group meeting at CenStat, Hasselt (Belgium), December 2018.

3. *DALEX: Descriptive mAchine Learning EXplanations. Tools for exploration, validation and explanation of complex machine learning models* talk given at the AG Dank meeting (working group of Gesellschaft für Klassifikation), Stralsund (Germany), October 2018.

6.2 Contributed talks

11. R Tools for Automated Exploratory Data Analysis talk given at the Why R? conference in Warsaw (Poland), September 2019.

10. *Interpretable features for explaining machine learning models* talk given at the ISCB40 conference in Leuven (Belgium), July 2019.

9. *In Search of Interpretable Features to Explain Decisions of Black Box Models* talk given at the TFML 2019 conference in Kraków (Poland), February 2019.

8. *Local Interpretability of Machine Learning Models* talk given at the Joint meeting of the Italian Mathematical Union, the Italian Society of Industrial and Applied Mathematics and the Polish Mathematical Society in Wrocław (Poland), September 2018.

7. *Spitzer identity for Kendall random walk* talk at the IMS 2018 conference in Vilnius (Lithuania), July 2018.

6. *Spitzer identity for Kendall random walk* (in Polish) talk at a XV Probability Conference in Będlewo (Poland), May 2018.

5. *Local interpretability of machine learning models* talk at the IL-BALDS group meeting in Berlin (Germany), December 2017.

4. *Parents' professions vs child's education - visualizing PISA study results* lightning talk at the Why R? conference in Warsaw (Poland), September 2017.

3. *Fluctuations of Kendall random walks* talk at the ISSPSM 2017 conference in Debrecen (Hungary), August 2017.

2. *Wiener-Hopf factorization for extremal Markovian sequences connected with the Kendall convolution* talk given at the EVA 2017 conference in Delft (Netherlands), June 2017.

1. *Generalized convolutions in probability theory* (in polish) talk at the Oblicze 2017 student conference in Poznań, May 2017.

6.3 Posters

3. *Local Explanations of Complex Machine Learning Models* presented at the MLinPL 2018 conference in Warsaw (Poland), December 2018 (with M. Kuźba and P. Biecek).

2. *Kendall Random Walks* presented at the 2nd Interdisciplinary FNP conference in Warsaw (Poland), November 2017 (with B. Jasiulis-Gołdyn, K. Łukaszewicz, W. Szczotka, M. Arendarczyk).

1. *Extreme Value Theory for air pollution modeling: Wrocław example* (in polish) presented at the *Oblicze* student conference in Poznań (Poland), May 2017.

7 Teaching experience

5. Software development with R (lab) at the Mathematical Institute, University of Wrocław, spring semester 2019/2020. Advanced R course designed by me (in polish).

4. Analysis of large data sets (lab) at the Mathematical Institute, University of Wrocław, spring semester 2019/202. High-dimensional statistics course by prof. Małgorzata Bogdan (in polish).

3. Programming and Data Analysis in R (lab) at the Mathematical Institute, University of Wrocław, winter semesters 2019/2020 and 2020/2021. Introductory course in R designed by me (in polish).

2. Introduction to Machine Learning (lab) at the Faculty of Mathematics and Information Sciences, Warsaw University of Technology, spring semester 2018/2019. Introductory course in Machine Learning (in polish).

1. Computer Statistics (lab) at the Faculty of Mathematics and Information Sciences, Warsaw University of Technology, winter semester 2018/2019. Introductory course in R and mathematical statistics (in english).

8 Prizes and scholarships

2. Stipend of the Minister of Science and Higher Education for the best students, 2017.

1. Rector's stipend for the best students (University of Wrocław, awarded 4 times 2014 - 2017).

9 Other activity

5. Short course on Intermediate R as a part of the ASMS Fall Workshop (November 2020).

4. Two workshops on Interpretable Machine Learning in R: at the eRum 2018 conference (Budapest, Hungary, May 2018, with P. Biecek) and at the Why R? conference (Wrocław, Poland, July 2018).

3. Two presentations at the Wrocław R users group meeting: *Machine learning in R* (January 2018), *Interpretability of machine learning models* (May 2018).

2. Member of the Wrocław R users group and co-organizer of its meetups (https://stwur.pl, 2017 - currently).

1. Member of a research group MI^2 Warsaw / MI^2 Data Lab (https://mi2.mini.pw.edu.pl, 2016 - 2019).

10 Non-academic experience

(d) Freelance IT Consultant, September 2019 - currently. Consulting for Nickel Digital Asset Management Ltd.

(c) Trainee at Kruk S.A., August - September 2018. R packages development and e-commerce data analysis.

(b) Junior Admin at the Institute of Mathematics, University of Wrocław, October 2016.

(a) Trainee at InnoIdea, July - October 2015. Financial data analysis with R and PostgreSQL.

11 Research interests

- Statistical methods in Mass Spectrometry based Proteomics
- Automated Exploratory Data Analysis
- Interpretable Machine Learning