

Curriculum Vitae

Personal Information

NAME, SURNAME: Ričards Marcinkevičs
DATE OF BIRTH: 28.12.1995
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NATIONALITY: Latvian



Education

- 2019- Ph.D. student, **Department of Computer Science, Institute for Machine Learning, ETH Zurich**, supervised by Prof. Dr. [Julia E. Vogt](#), co-advised by Prof. Dr. [Fanny Yang](#)
- 2017-2019 M.Sc. ETH in Statistics, with distinction, **Department of Mathematics, ETH Zurich**. Master thesis: “*Causal Inference in Time Series for Identifying Molecular Fingerprints during Sleep*”, supervised by Prof. Dr. [Joachim M. Buhmann](#), advised by [Đorđe Miladinović](#)
- 2014-2017 B.Sc. in Data Science and Knowledge Engineering, summa cum laude, **Department of Data Science and Knowledge Engineering, Maastricht University**. Bachelor thesis: “*Minimum Modification of Time Series to Alter Classification Outcomes under the Nearest Neighbour Algorithm*”, supervised by Prof. Dr. [Steven Kelk](#), Prof. Dr. [Carlo Galuzzi](#), and Dr. [Berthold Stegemann](#)
- 2009-2014 **Rīga Secondary School 34**, General Certificate of Secondary Education
- 2002-2009 **Rīga Secondary School 95**

Publications & Preprints

Marcinkevičs, R.,[†] Reis Wolfertstetter, P.,[†] Klimiene, U.,[†] Ozkan, E., Chin-Cheong, K., Paschke, A., Zeres, J., Denzinger, M., Niederberger, D., Wellmann, S., Knorr, C., Vogt, J. E. (2023). [Interpretable and Intervenable Ultrasonography-based Machine Learning Models for Pediatric Appendicitis](#). *arXiv: 2302.14460*.

Marcinkevičs, R.,[†] Silva, P.,[†] Hankele, A.-K.,[†] ..., Vogt, J.E., Sallusto, F., Stoffel, M., Ulbrich, S.E. (2023) Machine learning analysis of humoral and cellular responses to SARS-CoV-2 infection in young adults. *Under review in Frontiers in Immunology*.

Vogt, J. E., Ozkan, E., **Marcinkevičs, R.** (2023). [Introduction to Machine Learning for Physicians: A Survival Guide for Data Deluge](#). In *Digital Medicine: Bringing Digital Solutions to Medical Practice*.

Schuurmans, M., Muszynski, M., Li, X., **Marcinkevičs, R.**, Zimmerli, L., Monserrat Lopez, D., Michel, B., Weiss, J., Hage, R., Roeder, M., Vogt, J. E., Brunswiler, T. (2023) [Multimodal Remote Home-Monitoring of Lung Transplant Recipients during COVID-19 Vaccinations: Usability Pilot Study of the COVIDA Desk Incorporating Wearable Devices](#). *Medicina*.

Marcinkevičs, R., and Vogt, J. E. (2023) [Interpretable and explainable machine learning: A methods-centric overview with concrete examples](#). *WIREs Data Mining and Knowledge Discovery*.

Marcinkevičs, R., Ozkan, E., Vogt, J.E. (2022) [Debiasing Deep Chest X-Ray Classifiers using Intra- and Post-processing Methods](#). *7th Machine Learning for Healthcare Conference, MLHC 2022*.

Manduchi, L.,[†] **Marcinkevičs, R.**,[†] Massi, M.C., Weikert, T., Sauter, A., Gotta, V., Müller, T., Vasella, F., Neidert, M.C., Pfister, M., Stieltjes, B., Vogt, J.E. (2022) [A Deep Variational Approach to Clustering Survival Data](#). *10th International Conference on Learning Representations, ICLR 2022*.

Roig Aparicio, P., **Marcinkevičs, R.**, Reis Wolfertstetter, P., Wellmann, S., Knorr, C., Vogt, J.E. (2021) [Learning Medical Risk Scores for Pediatric Appendicitis](#). *Short paper at 20th IEEE International Conference on Machine Learning and Applications, ICMLA 2021*.

Nowak, N., Gaisl, T., Miladinovic, D., **Marcinkevičs, R.**, Osswald, M., Bauer, S., Buhmann, J.M., Zenobi, R., Sinues, P., Brown, S.A., Kohler, M. (2021) [Rapid and reversible control of human metabolism by individual sleep states](#). *Cell Reports*.

Hatteland, A.H.,[†] **Marcinkevičs, R.**,[†] Marquis, R., Frick, T., Hubbard, I., Vogt, J.E., Brunswiler, T., Ryvlin, P. (2021) [Exploring Relationships between Cerebral and Peripheral Biosignals with Neural Networks](#). *Best paper award at IEEE International Conference on Digital Health, ICDH 2021*.

- Marcinkevičs, R.**,[†] Reis Wolfertstetter, P.,[†] Wellmann, S., Knorr, C., Vogt, J.E. (2021) [Using machine learning to predict the diagnosis, management and severity of pediatric appendicitis](#). *Frontiers in Pediatrics*.
- Marcinkevičs, R.** and Vogt, J.E. (2021) [Interpretable Models for Granger Causality Using Self-explaining Neural Networks](#). *9th International Conference on Learning Representations, ICLR 2021*.
- Marcinkevičs, R.** and Vogt, J.E. (2020) [Interpretability and Explainability: A Machine Learning Zoo Mini-tour](#). *arXiv: 2012.01805*.
- Daunhawer, I., Sutter, T.M., **Marcinkevičs, R.**, Vogt, J.E. (2020) [Self-supervised Disentanglement of Modality-specific and Shared Factors Improves Multimodal Generative Models](#). *42nd DAGM German Conference on Pattern Recognition, DAGM GCPR 2020*.
- Marcinkevičs, R.**, Kelk, S., Galuzzi, C., Stegemann, B. (2019) [Discovery of Important Subsequences in Electrocardiogram Beats Using the Nearest Neighbour Algorithm](#). *arXiv: 1901.09187*.
- Marcinkevičs, R.**, O'Neill, J., Law, H., Pervolaraki, E., Hogarth, A., Russell, C.R., Stegemann, B., Holden, A.V., Tayebjee, M.H. (2017) [Multichannel ECG diagnostics for the diagnosis of arrhythmogenic right ventricular dysplasia](#). *EP-Europace*.

Workshop Contributions

- Vandenhirtz, M., Manduchi, L., **Marcinkevičs, R.**, Vogt, J.E. (2023) [Signal Is Harder To Learn Than Bias: Debiasing with Focal Loss](#). *Domain Generalization Workshop at ICLR 2023*.
- Marcinkevičs, R.**,[†] Silva, P.,[†] Hankele, A.-K.,[†] ..., Vogt, J.E., Sallusto, F., Stoffel, M., Ulbrich, S.E. (2022) [Site-specific Antibody and T Cell Immune Response to Particular Components of SARS-CoV-2](#). *1st Workshop on Healthcare AI and COVID-19 at ICML 2022*.
- Klimiene, U.,[†] **Marcinkevičs, R.**,[†] Reis Wolfertstetter, P., Ozkan, E., Paschke, A., Niederberger, D., Wellmann, S., Knorr, C., Vogt, J.E. (2022) [Multiview Concept Bottleneck Models Applied to Diagnosing Pediatric Appendicitis](#). *2nd Workshop on Interpretable Machine Learning in Healthcare (IMLH) at ICML 2022*.
- Marcinkevičs, R.**, Ozkan, E., Vogt, J.E. (2022) [Debiasing Neural Networks using Differentiable Classification Parity Proxies](#). *ICLR 2022 Workshop on Socially Responsible Machine Learning*.
- Reis Wolfertstetter, P., **Marcinkevičs, R.**, Wellmann, S., Knorr, C., Vogt, J.E. (2021) [Using Machine Learning to Predict the Diagnosis, Management and Severity of Pediatric Appendicitis](#). *Kongress für Kinder- und Jugendmedizin (KKJ)*.
- Reis Wolfertstetter, P., **Marcinkevičs, R.**, Wellmann, S., Knorr, C., Vogt, J.E. (2021) [Using Machine Learning to Predict the Diagnosis, Management and Severity of Pediatric Appendicitis](#). *Machine Learning for Healthcare Conference 2021 – Clinical Abstract Track*.
- Manduchi, L.,[†] **Marcinkevičs, R.**,[†] Vogt, J.E. (2021) [A Deep Variational Approach to Clustering Survival Data](#). *AI for Public Health Workshop at ICLR 2021*.
- Marcinkevičs, R.** and Vogt, J.E. (2020) [Interpretable Models for Granger Causality Using Self-explaining Neural Networks](#). *NeurIPS 2020 Workshop on Interpretable Inductive Biases and Physically Structured Learning*.
- Marcinkevičs, R.**, Miladinović, Đ., Vogt, J.E., Buhmann, J.M. (2020) [Nonlinear Granger Causality for Identifying Molecular Fingerprints during Sleep](#). *Swiss Institute of Bioinformatics (SIB) Days*.
- Marcinkevičs, R.**, Stegemann, B., Holden, A.V., Tayebjee, M.H. (2017) [Differences in Right and Left Atrial Structure and Electrophysiology in ARVD](#). *Heart Rhythm Congress 2017*.
- Aasmul, S., **Marcinkevičs, R.**, Stegemann, B. (2016) [Remote Photoplethysmography – Comparing Perfusion Signals at Different Sites of the Body](#). *Medtronic 17th European Science and Technology Conference*.
- Aasmul, S., **Marcinkevičs, R.**, Stegemann, B. (2016) [Comparison of Colour and Monochrome Cameras in Remote Photoplethysmographic Imaging](#). *Medtronic 17th European Science and Technology Conference*.

Talks

- Anomaly Detection for Retinal Fundus Images (March 2023) *Invited talk at the Statistical Machine Learning group meeting at ETH Zurich*.
- [Debiasing Neural Networks using Differentiable Classification Parity Proxies](#) (April 2022) *Contributed talk at the ICLR 2022 Workshop on Socially Responsible Machine Learning*.
- Deep Variational Approaches for Weakly Supervised Clustering with Applications to Survival Data (November 2021) *Invited talk at the Research Seminar of the TU Wien Machine Learning Research Unit*.

[Machine Learning Basics for Physicians](#) (November 2021) *Invited talk at the Barmherzige Brüder Regensburg Hospital Journal Club.*

[A Deep Variational Approach to Clustering Survival Data](#) (March & May 2021) *Contributed talk at the AI for Public Health Workshop at ICLR 2021 and invited talk at the IBM Research Zurich Machine Learning Seminar.*

Interpretable Models for Granger Causality Using Self-explaining Neural Networks (November 2020) *Talk at the ETH Zurich Doctoral Machine Learning Seminar.*

Reviewing

Conferences	ICML 2023; Machine Learning for Health symposium 2022 (ML4H 2022; <i>outstanding reviewer award</i>); NeurIPS 2022; ICML 2022
Journals	Frontiers in Medicine; iScience (<i>Cell Press</i>); International Journal of Computer Vision (<i>Springer</i>)
Workshops	Time Series Representation Learning for Health (ICLR 2023); Learning from Time Series for Health (NeurIPS 2022); Trustworthy and Socially Responsible Machine Learning (<i>PC member</i> ; NeurIPS 2022); Interpretable Machine Learning in Healthcare (<i>emergency reviewer</i> ; ICML 2022); Workshop on Computational Biology (ICML 2022); Bridging the Gap: From Machine Learning Research to Clinical Practice (<i>PC member</i> ; NeurIPS 2021)

Work Experience

2019-	Research assistant at the Department of Computer Science, ETH ZURICH
2015-2017	Intern at MEDTRONIC Bakken Research Center, Maastricht Developed methods for extracting and processing remote photoplethysmographic signals from videos; analysed multichannel electrocardiograms to perform the selection of channels for the diagnosis of arrhythmogenic right ventricular dysplasia.

Teaching Experience

2023	Head TA for Data Science for Medicine (252-0868-00L)
2021-2022	TA for Data Science for Medicine (252-0868-00L)
2020-2022	TA for Advanced Machine Learning (252-0535-00L)
2020	TA for Digital Medicine II (252-0868-00L)

Certificates & Awards

2022	Outstanding reviewer award at the 2 nd Machine Learning for Health symposium 2022
2021	Best paper award at IEEE ICDH 2021
2021	Gero Wesener prize from Deutsche Gesellschaft für Kinderchirurgie (DGKCH)
2017	IELTS: 8.5
2017	Maastricht University Research Based Learning Program (MaRBLe)
2017	KE@Work

Languages

Latvian (*native*), Russian (*native*), English (*professional*), German (*limited working proficiency*)

Programming & Software Skills

Basic	C++, mySQL, GLPK, OpenMP, Open MPI, Adobe Photoshop
Intermediate	C#, \LaTeX , OpenCV, TensorFlow
Advanced	python, PyTorch, Java, R, MATLAB, MS Office

Interests & Activities

Recreational Mathematics, History, Literature, Philosophy, Angling, Swimming