

# André Artelt



## PERSONAL DATA

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PLACE AND YEAR OF BIRTH: Bielefeld, Germany — 1994  
EMAIL: aartelt@techfak.uni-bielefeld.de  
WEBSITE: <https://andreatelt.github.io>  
LANGUAGES: German (native), English (fluent)

## WORKING EXPERIENCE

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2019 - PRESENT | *Researcher* at BIELEFELD UNIVERSITY, GERMANY  
Machine Learning Group at Faculty of Technology.

2014 - 2019 | *Teaching assistant* at BIELEFELD UNIVERSITY, GERMANY  
Teaching assistant (TA) for different computer science courses: Introduction to Machine Learning, Applied Optimization, Algorithms in Computer Science, Algorithms and Data structures, Introduction to OOP in Java.

2013 - 2019 | *Working student in the software development department* of SCHÜCO DIGITAL GMBH (SCHÜCO INTERNATIONAL KG), Bielefeld, Germany  
Software development and information retrieval. Used technology: C#, .NET, C++, (no)SQL, JavaScript und Python.

## AFFILIATIONS

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2022 - PRESENT | *Visiting Researcher* at UNIVERSITY OF CYPRUS, CYPRUS  
Department of Electrical and Computer Engineering / KIOS Research and Innovation Center of Excellence.

## EDUCATION

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2019 - 2023 | *PhD in Machine Learning / Dr. rer. nat.*, BIELEFELD UNIVERSITY  
2017 - 2019 | *Intelligent Systems / Master of Science*, BIELEFELD UNIVERSITY  
2013 - 2017 | *Cognitive Informatics / Bachelor of Science*, BIELEFELD UNIVERSITY

## PUBLICATION RECORD

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- H-INDEX: 10
- NUMBER OF CITATIONS: 368

*Date:* 18.04.2024 (h-Index and number of citations according to Google Scholar)

## AWARDS

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WINTER TERM 2018/19 | *Outstanding TA award* (Course: INTRODUCTION TO MACHINE LEARNING)  
WINTER TERM 2017/18 | *Outstanding TA award* (Course: INTRODUCTION TO MACHINE LEARNING)  
SUMMER TERM 2015 | *1. Price group project* (Project seminar on software engineering)

## Most Important Publications

- XAI @ IJCAI-2023 *"Explain it in the Same Way!" – Model-Agnostic Group Fairness of Counterfactual Explanations*  
**A. Artelt**, B. Hammer
- NEUCOM-2023 *"I do not Know! But Why?" – Local Model-Agnostic Example-based Explanations of Reject*  
**A. Artelt**, R. Visser, B. Hammer
- XAI @ IJCAI-2022 *One Explanation to Rule them All – Ensemble Consistent Explanations*  
**A. Artelt**, S. Vrachimis, D. Eliades, M. Polycarpou, B. Hammer
- NEPL-2022 *Contrasting Explanations for Understanding and Regularizing Model Adaptations*  
**A. Artelt**, F. Hinder, V. Vaquet, R. Feldhans, B. Hammer
- SSCI-2021 *Evaluating Robustness of Counterfactual Explanations*  
**A. Artelt**, V. Vaquet, R. Velioglu, F. Hinder, J. Brinkrolf, M. Schilling, B. Hammer

## RESEARCH VISITS

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- OCTOBER - DECEMBER 2023 *KIOS - Research and Innovation Center of Excellence*  
*University of Cyprus*  
Host: Marios Polycarpou
- NOVEMBER 2022 *KIOS - Research and Innovation Center of Excellence*  
*University of Cyprus*  
Host: Marios Polycarpou

## ORGANIZING ACTIVITIES

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- WCCI-2024 *Special Session on "Machine Learning in Critical Infrastructure"*  
**A. Artelt**, C. Alippi, M. Polycarpou, B. Hammer

## REVIEWER ACTIVITIES

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Numerous reviews for several conferences and journals:

- CONFERENCES: *IJCAI, ICML, ICLR, NeurIPS, ECML, IEEE IJCNN, IEEE CAI, ICANN, ESANN, ICNCIT*
- JOURNALS: *ACM Computing Surveys, Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Neural Networks and Learning Systems, Proceedings of the IEEE, Cognitive Computation, Frontiers in Energy Research (Sustainable Energy Systems and Policies), Journal of Decision Systems*

## TALKS & PRESENTATIONS

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- AMLD EPFL 2024 *Utilizing XAI for Increasing Customers' Repurchase Intentions*  
(TALK & POSTER)  
**A. Artelt**
- CITIZENSCIENCE-2023 *Vertrauenswürdige KI* (TALK)  
**A. Artelt**
- HerrenhausenConf.-2022 *Explainable AI for Intelligent Machines in Everyday Life* (POSTER)  
B. Hammer, **A. Artelt**, et al.
- HNI-Symp.-2022 *"What if ..." - Counterfactuals for Explaining Machine Learning Models*  
(TALK)  
**A. Artelt**
- CITIZENSCIENCE-2020 *Maschinelles Lernen (ML)* (TALK)  
**A. Artelt**
- EEML-2020 *On Counterfactual Explanations of ML Models* (TALK)  
**A. Artelt**

## TEACHING EXPERIENCE

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### Tutorials

- IJCAI-2024 *All You Ever Need to Know About Counterfactual Explanations: Fundamentals, Methods, & User Studies for XAI*  
A. Artelt, U. Kuhl, M. Keane

### Supervision

- NUMBER OF BACHELOR THESES: 9
- NUMBER OF MASTER PROJECTS: 2
- NUMBER OF MASTER THESES: 1

### Teaching Assistant

- WINTER 2014/15 *Algorithms and Data structures & Functional Programming in Haskell*<sup>1</sup>  
SUMMER 2015 *Object Orientated Programming in Java*<sup>1</sup>  
WINTER 2015/16 *Algorithms and Data structures & Functional Programming in Haskell*<sup>1</sup>  
SUMMER 2016 *Foundations of Artificial Cognition*<sup>1</sup>  
WINTER 2016/17 *Introduction to Machine Learning*  
SUMMER 2017 *Foundations of Artificial Cognition*<sup>1</sup>  
WINTER 2017/18 *Introduction to Machine Learning*  
SUMMER 2018 *Algorithms in Computer Science*<sup>1</sup>  
WINTER 2018/19 *Introduction to Machine Learning; Applied Optimization*

<sup>1</sup> Course was taught in German.

### Organizer of Exercises

- SUMMER 2019 *Algorithms in Computer Science*  
WINTER 2019/20 *Introduction to Machine Learning*  
SUMMER 2020 *Algorithms in Computer Science*  
WINTER 2020/21 *Applied Optimization*  
SUMMER 2021 *Algorithms in Computer Science*  
WINTER 2021/22 *Applied Optimization*  
SUMMER 2023 *Algorithms in Computer Science*

# COMPLETE LIST OF PUBLICATIONS

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## Conference Publications

- ICEIS-2024 *Application of a Multi-instance Counterfactual Explanation Method for Road Safety Analysis* (Abstract)  
**A. Artelt**, A. Gregoriades
- SSCI-2023 *Unsupervised Unlearning of Concept Drift with Autoencoders*  
**A. Artelt**, K. Malialis, C. Panayiotou, M. Polycarpou, B. Hammer
- xAI 2023 *For better or worse: The impact of counterfactual explanations' directionality on user behavior in XAI*  
U. Kuhl, **A. Artelt**, B. Hammer
- MediaPsych-2023 *Can You Explain Why You Did Not Recommend Something Else? An Experimental Study on the Effects of Contrastive Explanations and Person-Likeness on Trust in and Understanding of Algorithms*  
A. C. Horstmann, J. Szczuka, L. Mavrina, **A. Artelt**, C. Strathmann, N. Szymczyk, et al.
- XAI @ IJCAI-2023 *"Explain it in the Same Way!" – Model-Agnostic Group Fairness of Counterfactual Explanations* (Workshop)  
**A. Artelt**, B. Hammer
- IWANN-2023 *Adversarial Attacks on Leakage Detectors in Water Distribution Networks*  
P. Stahlhofen, **A. Artelt**, L. Hermes, B. Hammer
- ICEIS-2023 *"How to make them stay?" – Diverse Counterfactual Explanations of Employee Attrition*  
**A. Artelt**, A. Gregoriades
- IDA-2023 *Spatial Graph Convolution Neural Networks for Water Distribution Systems*  
I. Ashraf, L. Hermes, **A. Artelt**, B. Hammer
- ICA-2023 *Enhancing the Understanding of Algorithms With Contrastive Explanations: An Experimental Study on the Effects of Explanations and Person-Likeness on Trust in and Understanding of Algorithms*  
J. Szczuka, A. C. Horstmann, L. Mavrina, **A. Artelt**, C. Strathmann, et al.
- ICPRAM-2023 *"Why Here and Not There?" – Diverse Contrasting Explanations of Dimensionality Reduction*  
**A. Artelt**, A. Schulz, B. Hammer
- SSCI-2022 *"Even if ..." – Diverse Semifactual Explanations of Reject*  
**A. Artelt**, B. Hammer
- IDEAL-2022 *Explainable Artificial Intelligence for Improved Modeling of Processes*  
R. Velioglu, J.P. Göpfert, **A. Artelt**, B. Hammer
- NCTA-2022 *Explaining Reject Options of Learning Vector Quantization Classifiers*  
**A. Artelt**, J. Brinkrolf, R. Visser, B. Hammer
- ESANN-2022 *Model Agnostic Local Explanations of Reject*  
**A. Artelt**, J. Brinkrolf, R. Visser, B. Hammer
- ESANN-2022 *Improving Zorro Explanations for Sparse Observations with Dense Proxy Data*  
A. Mazur, **A. Artelt**, B. Hammer
- ESANN-2022 *Contrasting Explanation of Concept Drift*  
F. Hinder, **A. Artelt**, V. Vaquet, B. Hammer
- ICANN-2022 *Taking care of our drinking water: Dealing with Sensor Faults in Water Distribution Networks*  
V. Vaquet, **A. Artelt**, J. Brinkrolf, B. Hammer
- ICANN-2022 *SAM-kNN Regressor for Online Learning in Water Distribution Networks*  
J. Jakob\*, **A. Artelt**\*, M. Hasenjäger, B. Hammer
- XAI @ IJCAI-2022 *One Explanation to Rule them All — Ensemble Consistent Explanations* (Workshop)  
**A. Artelt**, S. Vrachimis, D. Eliades, M. Polycarpou, B. Hammer
- IJCNN-2022 *Localization of Concept Drift: Identifying the Drifting Datapoints*  
F. Hinder, V. Vaquet, J. Brinkrolf, **A. Artelt**, B. Hammer
- FAccT-2022 *Keep your friends close and your counterfactuals closer: Improved learning from closest rather than plausible counterfactual explanations in an abstract setting*  
U. Kuhl, **A. Artelt**, B. Hammer
- DGPs-2022 *Let me explain my algorithms: An empirical investigation about the effects of explanations and personhood on trust and understanding*  
J. Szczuka, N. Szymczyk, C. Strathmann, **A. Artelt**, L. Varonina, N. Krämer

- SSCI-2021 *Evaluating Robustness of Counterfactual Explanations*  
**A. Artelt**, V. Vaquet, R. Velioglu, F. Hinder, J. Brinkrolf, M. Schilling, B. Hammer
- IWANN-2021 *Contrastive Explanations for Explaining Model Adaptations*  
**A. Artelt**, F. Hinder, V. Vaquet, R. Feldhans, B. Hammer
- IJCNN-2021 *Efficient computation of contrastive explanations*  
**A. Artelt**, B. Hammer
- IUI-2020 *Improving and Evaluating Conversational User Interfaces for Children*  
N. Krämer, J. Szczuka, A. Rossnagel, C. Geminn, S. Kopp, B. Hammer,  
L. Varonina, **A. Artelt**, A. Manzeschke, C. Weber
- ICANN-2020 *Convex density constraints for computing plausible counterfactual explanations* \* Shared  
**A. Artelt**, B. Hammer
- ICML-2020 *Towards non-parametric drift detection via  
Dynamic Adapting Window Independence Drift Detection (DAWIDD)*  
F.Hinder, **A. Artelt**, B. Hammer
- ESANN-2020 *Efficient computation of counterfactual explanations of LVQ models*  
**A. Artelt**, B. Hammer
- IDA-2020 *Adversarial attack hidden in plain sight*  
J.P. Göpfert, **A. Artelt**, H. Wersing, B. Hammer
- first authorship.

## Journal Publications

- NEUCOM-2023 *“I do not Know! But Why?” – Local Model-Agnostic Example-based Explanations of Reject*  
**A. Artelt**, R. Visser, B. Hammer
- UAAI-2023 *Interpretable SAM-kNN Regressor for Online Learning on High-dimensional Data*  
J. Jakob, **A. Artelt**, M. Hasenjäger, B. Hammer
- FCOMP-2023 *Let’s Go to the Alien Zoo: Introducing an Experimental Framework  
to Study Usability of Counterfactual Explanations for Machine Learning*  
U.Kuhl, **A. Artelt**, B. Hammer
- NEPL-2022 *Contrasting Explanations for Understanding and Regularizing Model Adaptations*  
**A. Artelt**, F. Hinder, V. Vaquet, R. Feldhans, B. Hammer
- NEUCOM-2021 *Efficient computation of counterfactual explanations  
and counterfactual metrics of prototype-based classifiers*  
**A. Artelt**, B. Hammer
- DuD-9-2020 *Kinder als Nutzende smarterer Sprachassistenten  
Spezieller Gestaltungsbedarf zum Schutz von Kindern*  
C. Geminn, J. Szczuka, C. Weber, **A. Artelt**, L. Varonina

## Book chapters

- 2024 *Daten aus informatischer Sicht* in Geminn & Johannes, ”Europäisches Datenrecht”<sup>1</sup> <sup>1</sup> English  
**A. Artelt**  
version available as: *Data in Computer Science* in Geminn & Johannes, ”EU Data Law” (2024), A. Artelt

## Other Publications

- 2024 *Konversation mit Künstlicher Intelligenz Gewonnene Erkenntnisse und künftige Herausforderungen*  
A. Horstmann, **A. Artelt**, C. Geminn, B. Hammer, S. Kopp, A. Manzeschke, L. Mavrina  
C. Strathmann, C. Weber, N. Krämer
- arXiv-2024 *A Two-Stage Algorithm for Cost-Efficient Multi-instance Counterfactual Explanations*  
**A. Artelt**, A. Gregoriades
- arXiv-2024 *The Effect of Data Poisoning on Counterfactual Explanations*  
**A. Artelt**, S. Sharma, F. Lecué, B. Hammer
- PhD-2023 *Contrasting Explanations in Machine Learning – Efficiency, Robustness & Applications*  
**A. Artelt**
- 2023 *Kann sich künstliche Intelligenz selbst erklären?  
Wie Erklärungen aus rechtswissenschaftlicher und ethischer Sicht gestaltet sein sollten und  
was Psychologie und Informatik dazu beitragen können*  
A. Horstmann, N. Krämer, C. Geminn, T. Bile, C. Weber, A. Manzeschke,  
L. Mavrina, S. Kopp, **A. Artelt**, B. Hammer
- 2023 *Gesundheits-Apps & Digitale Gesundheitsanwendungen (DiGAs) aus ethischer,  
rechtlicher, psychologischer und informatischer Perspektive*  
**A. Artelt**, C. Geminn, et al.
- 2022 *Faire Algorithmen und die Fairness von Erklärungen:  
Informatische, rechtliche und ethische Perspektiven*  
**A. Artelt**, C. Geminn, et al.
- arXiv-2022 *Precise Change Point Detection using Spectral Drift Detection*  
F. Hinder, **A. Artelt**, V. Vaquet, B. Hammer
- arXiv-2021 *Convex optimization for actionable & plausible counterfactual explanations*  
**A. Artelt**, B. Hammer
- 2021 *Können Kinder aufgeklärte Nutzer\* innen von Sprachassistenten sein?  
Rechtliche, psychologische, ethische und informatische Perspektiven*  
J. Szczuka, **A. Artelt**, C. Geminn, et al.
- arXiv-2019 *A probability theoretic approach to drifting data in continuous time domains*  
F. Hinder, **A. Artelt**, B. Hammer
- 2019 *KI-basierte Sprachassistenten im Alltag:  
Forschungsbedarf aus informatischer, psychologischer, ethischer und rechtlicher Sicht*  
N. Krämer, **A. Artelt**, C. Geminn, et.al.
- arXiv-2019 *On the computation of counterfactual explanations – A survey*  
**A. Artelt**, B. Hammer
- GitHub-2019 *CEML - Counterfactuals for Explaining Machine Learning models – A Python toolbox*  
**A. Artelt**
- 2019 *Lecture Notes on Applied Optimization*  
B. Paaßen, **A. Artelt**, B. Hammer
- 2019 *Introduction to Machine Learning – Supplementary notes*  
**A. Artelt**