

André Artelt



PERSONAL DATA

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

WORKING EXPERIENCE

2019 - PRESENT	<i>Researcher</i> at BIELEFELD UNIVERSITY, GERMANY Machine Learning Group at Faculty of Technology.
2014 - 2019	<i>Teaching assistant</i> 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	<i>Working student in the software development department</i> 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

2022 - PRESENT	<i>Visiting Researcher</i> at UNIVERSITY OF CYPRUS, CYPRUS Department of Electrical and Computer Engineering / KIOS Research and Innovation Center of Excellence.
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EDUCATION

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

PUBLICATION RECORD

- H-INDEX: 10
- NUMBER OF CITATIONS: 376

Date: 24.05.2024 (h-Index and number of citations according to Google Scholar)

AWARDS

WINTER TERM 2018/19	<i>Outstanding TA award</i> (Course: INTRODUCTION TO MACHINE LEARNING)
WINTER TERM 2017/18	<i>Outstanding TA award</i> (Course: INTRODUCTION TO MACHINE LEARNING)
SUMMER TERM 2015	<i>1. Price group project</i> (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
- IEEE 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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- IEEE WCCI 2024 *Special Session on "Machine Learning in Critical Infrastructure"*
A. Artelt, C. Alippi, M. Polycarpou, B. Hammer

REVIEWER ACTIVITIES

Numerous reviews for several conferences and journals:

- CONFERENCES: *IJCAI*, *ICML*, *ICLR*, *NeurIPS*, *ECML*, *xAI*, *ECAI*, *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*, *PeerJ*, *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

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

¹ 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

Conference Publications

- xAI 2024 *A Two-Stage Algorithm for Cost-Efficient Multi-instance Counterfactual Explanations* (Poster)
A. Artelt, A. Gregoriades
- ICEIS 2024 *Application of a Multi-instance Counterfactual Explanation Method for Road Safety Analysis* (Abstract)
A. Artelt, A. Gregoriades
- IEEE 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
- IEEE 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
- IEEE IJCNN 2022 *Localization of Concept Drift: Identifying the Drifting Datapoints*
F. Hinder, V. Vaquet, J. Brinkrolf, **A. Artelt**, B. Hammer
- ACM 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
- IEEE SSCI 2021 *Evaluating Robustness of Counterfactual Explanations*
A. Artelt, V. Vaquet, R. Velioğlu, 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
- IEEE 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*
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
- * Shared 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”¹ ¹ English
A. Artelt
version available as: *Data in Computer Science* in Geminn & Johannes, “EU Data Law” (2024), A. Artelt

Other Publications

- GitHub-2024 *EPyT-Flow – EPANET Python Toolkit - Flow*
A. Artelt, M. Kyriakou, S. Vrachimis, D. Eliades, B. Hammer, M. Polycarpou
- 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 *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