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 | *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

2022 - Present | *Visiting Researcher* at University of Cyprus, Cyprus
Department of Electrical and Computer Engineering / KIOS Research and Innovation Center of Excellence.

Education

2019 - 2023 *PhD in Machine Learning / Dr. rer. nat.*, Bielefeld University
2017 - 2019 *Intelligent Systems / Master of Science*, Bielefeld University
2013 - 2017 *Cognitve Informatics / Bachelor of Science*, Bielefeld University

Publication Record

- h-Index: 10
- Number of citations: 393

Date: 23.06.2024 (h-Index and number of citations according to Google Scholar)

Awards

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
IEEE SSCI 2021	*Evaluating Robustness of Counterfactual Explanations* **A. Artelt**, V. Vaquet, R. Velioglu, F. Hinder, J. Brinkrolf, M. Schilling, B. Hammer

Organizing & Community Activities

IJCAI 2024	*All You Ever Need to Know About Counterfactual Explanations: Fundamentals, Methods, & User Studies for XAI* (Tutorial) **A. Artelt**, U. Kuhl, M. Keane
WDSA CCWI 2024	*Introduction to the EPANET-Python Toolkit (EPyT) for Smart Water Network Simulations* (Tutorial) D. Eliades, S. Vrachimis, M. Kyriakou, **A. Artelt**
IEEE WCCI 2024	*Machine Learning in Critical Infrastructure* (Special Session) **A. Artelt**, C. Alippi, M. Polycarpou, B. Hammer

Research Visits

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

Talks & Presentations

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**

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*

Teaching Experience

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 Progamming 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 Puplications

ICANN 2024	*Challenges, Methods, Data – a Survey of Machine Learning in Water Distribution Networks* V. Vaquet, F. Hinder, **A. Artelt**, I. Ashraf, J. Strotherm, J. Vaquet, J. Brinkrolf, B. Hammer
XAI @ ICJAI 2024	*Analyzing the Influence of Training Samples on Explanations* **A. Artelt**, B. Hammer (Workshop)
AI in CI @ ICJAI 2024	*A Toolbox for Supporting Research on AI in Water Distribution Networks* (Workshop) **A. Artelt**, M. Kyriakou, S. Vrachimis, D. Eliades, B. Hammer, M. Polycarpou
xAI 2024	*A Two-Stage Algorithm for Cost-Efficient Multi-instance Counterfactual Explanations* (Poster) **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. 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
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

DSS 2024	*Supporting Organizational Decisions on How to Improve Customer Repurchase using Multi-instance Counterfactual Explanations* **A. Artelt**, A. Gregoriades
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 smarter 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]
A. Artelt

[1] English 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