

Telehealth use, care continuity, and quality: diabetes and hypertension care in community health centers before and during the COVID-19 pandemic

AA Tierney, DD Payán, TT Brown, A Aguilera... - *Medical Care*, 2023

Background: Community health centers (CHCs) pivoted to using telehealth to deliver chronic care during the coronavirus COVID-19 pandemic. While care continuity can improve care quality and patients' experiences, it is unclear whether telehealth ...

Logic diagrams: a visual tool with untapped potential

A Thiem, Z Sebechlebská, L Mkrtyan - *Nature Reviews Methods Primers*, 2023

Logic diagrams are employed in electrical engineering for visualizing switching circuits. However, their utility and applicability extend far beyond the technical sciences. Here, we argue that natural and social scientists alike should consider ...

[HTML] Using conditional independence tests to elucidate causal links in cell cycle regulation in *Escherichia coli*

P Kar, S Tiruvadi-Krishnan, J Männik, J Männik, A Amir - *Proceedings of the National ...*, 2023

How cells regulate their cell cycles is a central question for cell biology. Models of cell size homeostasis have been proposed for bacteria, archaea, yeast, plant, and mammalian cells. New experiments bring forth high volumes of data suitable for ...

[HTML] Dyslexia: Causes and Concomitant Impairments

R Werth - *Brain Sciences*, 2023

In recent decades, theories have been presented to explain the nature of dyslexia, but the causes of dyslexia remained unclear. Although the investigation of the causes of dyslexia presupposes a clear understanding of the concept of cause, such ...

Counterfactual-based minority oversampling for imbalanced classification

S Wang, H Luo, S Huang, Q Li, L Liu, G Su, M Liu - *Engineering Applications of ...*, 2023

A key challenge of oversampling in imbalanced classification is that the generation of new minority samples often neglects the usage of majority classes, resulting in most new minority sampling spreading the whole minority space. In view of this, we ...

Reprint of: On the network topology of variance decompositions: Measuring the connectedness of financial firms

FX Diebold, K Yilmaz - *Journal of Econometrics*, 2023

We propose several connectedness measures built from pieces of variance decompositions, and we argue that they provide natural and insightful measures of connectedness. We also show that variance decompositions define weighted ...

Lifelong Learning and Personalization in Long-Term Human-Robot Interaction (LEAP-HRI) Adaptivity for All

B Irfan, A Ramachandran, M Staffa, H Gunes - *Companion of the 2023 ACM/IEEE ...*, 2023

Adaptation and personalization are critical elements when modeling robot behaviors toward users in real-world settings. Multiple aspects of the user need to be taken into consideration in order to personalize the interaction, such as their personality ...

[PDF] **Bounding the Probabilities of Benefit and Harm Through Sensitivity Parameters and Proxies**

JM Peña - arXiv preprint [arXiv:2303.05396](https://arxiv.org/abs/2303.05396), 2023

We present two methods for bounding the probabilities of benefit and harm under unmeasured confounding. The first method computes the (upper or lower) bound of either probability as a function of the observed data distribution and two intuitive ...

[PDF] **If not me, then who? Responsibility and replacement**

SA Wu, T Gerstenberg - 2023

How do people hold others responsible? Responsibility judgments are affected not only by what actually happened, but also by what could have happened if things had turned out differently. Here, we look at how replaceability—the ease with which a ...

[PDF] **Causal Inference with Non-IID Data under Model Uncertainty**

C Zhang, K Mohan, J Pearl - *Proceedings of Machine Learning Research* vol TBD, 2023

Algorithms that take data as input commonly assume that variables in the input dataset are Independent and Identically Distributed (IID). However, IID may be breached in many real world datasets that are generated by processes in which ...

Robot Tool Use: Learning, Transferring, Reasoning, and Applying Knowledge about Robots Using Human Tools

M Qin - 2022

Using human tools can significantly benefit robots in many application domains. It will endow a home robot with the ability to carry out everyday household activities such as cleaning. It will enable an industrial robot to work in manufacturing or ...

[PDF] **Fault propagation, detection and analysis in process systems**

DA Leng - 2022

Process systems are often complicated and liable to experience faults and their effects. Faults can adversely affect the safety of the plant, its environmental impact and economic operation. As such, fault diagnosis in process systems is an active ...

[PDF] **Nothing but Regrets—Privacy-Preserving Federated Causal Discovery**

O Mian, D Kaltenpoth, M Kamp, J Vreeken

In critical applications, causal models are the prime choice for their trustworthiness and explainability. If data is inherently distributed and privacy-sensitive, federated learning allows for collaboratively training a joint model. Existing approaches for ...

[PDF] **Causal Mediation Analysis with a Three-Dimensional Image Mediator**

M Chen, Y Zhou - arXiv preprint [arXiv:2303.06560](https://arxiv.org/abs/2303.06560), 2023

Causal mediation analysis is increasingly abundant in biology, psychology, and epidemiology studies, etc. In particular, with the advent of the big data era, the issue of high-dimensional mediators is becoming more prevalent. In neuroscience, with the ...

Prescriptive process monitoring based on causal effect estimation

ZD Bozorgi, I Teinemaa, M Dumas, M La Rosa... - Information Systems, 2023

Prescriptive process monitoring methods seek to control the execution of a business process by triggering interventions, at runtime, to optimize one or more performance measure (s) such as cycle time or defect rate. Examples of interventions include, for ...

[HTML] Metformin for Overweight and Obese Children With Bipolar Spectrum Disorders Treated With Second Generation Antipsychotics (MOBILITY): Protocol and ...

JA Welge, CU Correll, MT Sorter, VM Fornari, TJ Blom... - JAACAP Open, 2023

Objective Youth with bipolar-spectrum disorders may experience improved mood stability when treated with second-generation antipsychotics (SGAs), however SGAs are associated with unhealthy weight gain and adverse metabolic effects. Metformin ...

[PDF] Stabilizing Transformer Training by Preventing Attention Entropy Collapse

S Zhai, T Likhomanenko, E Littwin, D Busbridge... - arXiv preprint arXiv ..., 2023

Training stability is of great importance to Transformers. In this work, we investigate the training dynamics of Transformers by examining the evolution of the attention layers. In particular, we track the attention entropy for each attention head during the ...

Causal Graph Attention Network with Disentangled Representations for Complex Systems Fault Detection

J Liu, S Zheng, C Wang - Reliability Engineering & System Safety, 2023

Considering the importance of complex systems fault detection, much efforts have been dedicated to fault feature extraction with monitoring data. The graph-based approach has become a trending topic, which exploits the non-Euclidean structure ...

[PDF] Backdoor Defense via Deconfounded Representation Learning

Z Zhang, Q Liu, Z Wang, Z Lu, Q Hu - arXiv preprint arXiv:2303.06818, 2023

Deep neural networks (DNNs) are recently shown to be vulnerable to backdoor attacks, where attackers embed hidden backdoors in the DNN model by injecting a few poisoned examples into the training dataset. While extensive efforts have been ...

[PDF] On the Unlikelihood of D-Separation

I Feigenbaum, H Wang, S Heinecke, JC Niebles... - arXiv preprint arXiv ..., 2023

Causal discovery aims to recover a causal graph from data generated by it; constraint based methods do so by searching for a d-separating conditioning set of nodes in the graph via an oracle. In this paper, we provide analytic evidence that on ...

[PDF] Learning interpretable causal networks from very large datasets, application to 400,000 medical records of breast cancer patients

MC Ribeiro-Dantas, H Li, V Cabeli, L Dupuis, F Simon... - arXiv preprint arXiv ..., 2023

Discovering causal effects is at the core of scientific investigation but remains challenging when only observational data is available. In practice, causal networks are difficult to learn and interpret, and limited to relatively small datasets. We report a ...

Evaluating causal psychological models: A study of language theories of autism using a large sample

B Tang, M Levine, JH Adamek, EL Wodka, BS Caffo... - *Frontiers in Psychology*, 2023

Early descriptive observations comparing DLD and autism in children found that children with autism had alterations in both verbal language and non-verbal communication (Rutter et al., 1971; Rutter, 1978). Multiple groups hypothesized that ...

[PDF] NEXUS: On Explaining Confounding Bias

B Youngmann, M Cafarella, Y Moskovitch, B Salimi - 2023

When analyzing large datasets, analysts are often interested in the explanations for unexpected results produced by their queries. In this work, we focus on aggregate SQL queries that expose correlations in the data. A major challenge that hinders the ...

The causal structure of Frankfurt-and PAP-style cases

M Rellihan - *Analytic Philosophy*

Frankfurt-style cases suggest that an agent's moral responsibility for an action supervenes on the causal history of that action—at least when epistemic considerations are held constant. However, PAP-style cases suggest that moral ...

[PDF] PREDICCIÓN DE ALARMAS DE FALLAS EN REDES DE TELECOMUNICACIONES CON REDES NEURONALES ARTIFICIALES

AS PARADA

Las redes de telecomunicaciones han entrado en una era de cambios fundamentales (véase el prefacio de [17]). Solemos percatarnos de su trascendencia cuando ocurren cierta clase de eventos que alteran su buen funcionamiento ...

[PDF] Improvement-focused causal recourse (ICR)

G König, T Freiesleben, M Grosse-Wentrup - *arXiv preprint arXiv:2210.15709*, 2022

Algorithmic recourse recommendations, such as Karimi et al.'s (2021) causal recourse (CR), inform stakeholders of how to act to revert unfavourable decisions. However, some actions lead to acceptance (ie, revert the model's decision) but do ...

[PDF] CAT: Causal Audio Transformer for Audio Classification

X Liu, H Lu, J Yuan, X Li - *arXiv preprint arXiv:2303.07626*, 2023

The attention-based Transformers have been increasingly applied to audio classification because of their global receptive field and ability to handle long-term dependency. However, the existing frameworks which are mainly extended from the ...

A Causal Analysis of Market Contagion: A Double Machine Learning Approach

J Simonian - *The Journal of Financial Data Science*, 2023

Making reliable causal inferences is integral to both explaining past events and forecasting the future. Although there are various theories of economic causality, there has not yet been a wide adoption of machine learning techniques for causal ...

[PDF] [Distinguishing Cause from Effect on Categorical Data: The Uniform Channel Model](#)

MAT Figueiredo, CA Oliveira - arXiv preprint arXiv:[2303.08572](#), 2023

Distinguishing cause from effect using observations of a pair of random variables is a core problem in causal discovery. Most approaches proposed for this task, namely additive noise models (ANM), are only adequate for quantitative data. We propose a ...

[PDF] [Testing Causality for High Dimensional Data](#)

A Jambulapati, H Hasson, Y Park, Y Wang - arXiv preprint arXiv:[2303.07774](#), 2023

Determining causal relationship between high dimensional observations are among the most important tasks in scientific discoveries. In this paper, we revisited the `linear trace method`, a technique proposed in `Janzing2009telling` ...

[PDF] [Causal Reasoning in Data](#)

ARD Nogueira - 2023

Determining the cause for a particular event has been a case study for several researchers over the years. Finding out why an event happens (its cause) signifies that, for example, removing the cause from a system can stop the effect from ...

[PDF] [Causality: Hypergraphs, Matter of Degree, Foundations of Cosmology](#)

C Joslyn, A Ortiz-Munoz, EDR Velasquez, O Kosheleva...

The notion of causality is very important in many applications areas. Because of this importance, there are several formalizations of this notion in physics and in AI. Most of these definitions describe causality as a crisp ("yes"- "no") relation between two ...

[PDF] [Supporting Information Learning interpretable causal networks from very large datasets, application to 400,000 medical records of breast cancer patients](#)

MC Ribeiro-Dantas, H Li, V Cabeli, L Dupuis, F Simon...

Constraint-based methods (1, 2) proceed through successive steps, outlined in Fig. 1b, whose accuracy ultimately conditions the reliability and interpretability of the final causal graphical model. Starting from a fully connected graph, their first step consists ...

[PDF] [Efficient SAGE Estimation via Causal Structure Learning](#)

C Luther, G König, M Grosse-Wentrup, V CogSciHub

Abstract The Shapley Additive Global Importance (SAGE) value is a theoretically appealing interpretability method that fairly attributes global importance to a model's features. However, its exact calculation requires the computation of the feature's ...

[HTML] [Verantwortungsvolle Künstliche Intelligenz \(Teil 2\)](#)

K Mainzer

Abstract Teil 2: Der folgende Artikel widmet sich dem Ziel einer Künstlichen Intelligenz als Dienstleistung am Menschen (Abschnitt 5), um Vertrauen in KI (Abschnitt 5.1) durch Technikgestaltung (Abschnitt 5.2) zu erreichen. Ethische ...