
Discovering Causal Structure From Observations

Latent Variable Path Modeling with Partial Least Squares

Organizational Realities

Studies of Strategizing and Organizing

IJCAI-85, August 18-23, 1985

Nature's Capacities and Their Measurement

Causal Inference in Statistics

Controversy: Misuse, and Subtlety

Computation, Causation, and Discovery

Rational Constructivism in Cognitive Development

Encyclopedia of Epidemiology

IJCAI-91

A Primer

Machine Learning and Knowledge Discovery in Databases

Computer Applications in the Social Sciences

Proceedings of the Twelfth International Conference on Artificial Intelligence, Darling

Harbour, Sydney, Australia, 24-30 August 1991

Proceedings of the Ninth International Joint Conference on Artificial Intelligence
Computer Science and Software Engineering

Proceedings of the Twenty-fourth Annual Conference of the Cognitive Science
Society

Quantified Representation of Uncertainty and Imprecision

Database Systems for Advanced Applications

The Causal Structure of Natural Selection

Causal Models : How People Think about the World and Its Alternatives

Estimation and Discovery

Computing Handbook, Third Edition

Causation, Prediction, and Search

Foundations and Learning Algorithms

Handbook of Structural Equation Modeling

Benchmarking, Measuring, and Optimizing

Discovering Causal Structure

Causation, Prediction, and Search

Making Minds

Psychology, Philosophy, and Computation

Bayesian Artificial Intelligence

Foundations, Controversy, Strategy, and Resource-advantage Theory
Contemporary Psychometrics
European Conference, ECML PKDD 2016, Riva del Garda, Italy, September 19-23,
2016, Proceedings, Part II
Elements of Causal Inference
Scientific Discovery in the Social Sciences
19th International Conference, DASFAA 2014, Bali, Indonesia, April 21-24, 2014.
Proceedings, Part I
Big Data in Omics and Imaging

*Discovering
Causal
Structure
From
Observations*

*Downloaded
from
archive.imba.com
by guest*

BUCKLEY NEIL

Latent Variable Path
Modeling with Partial
Least Squares CRC Press
What assumptions and

methods allow us to turn observations into causal knowledge, and how can even incomplete causal knowledge be used in planning and prediction to influence and control our environment? In this book Peter Spirtes, Clark Glymour, and Richard

Scheines address these questions using the formalism of Bayes networks, with results that have been applied in diverse areas of research in the social, behavioral, and physical sciences. The authors show that although experimental

and observational study designs may not always permit the same inferences, they are subject to uniform principles. They axiomatize the connection between causal structure and probabilistic independence, explore several varieties of causal indistinguishability, formulate a theory of manipulation, and develop asymptotically reliable procedures for searching over equivalence classes of causal models, including models of categorical data

and structural equation models with and without latent variables. The authors show that the relationship between causality and probability can also help to clarify such diverse topics in statistics as the comparative power of experimentation versus observation, Simpson's paradox, errors in regression models, retrospective versus prospective sampling, and variable selection. The second edition contains a new introduction and an extensive survey of

advances and applications that have appeared since the first edition was published in 1993. Organizational Realities Guilford Publications Understanding causal structure is a central task of human cognition. Causal learning underpins the development of our concepts and categories, our intuitive theories, and our capacities for planning, imagination and inference. During the last few years, there has been an interdisciplinary revolution in our understanding of learning

and reasoning: Researchers in philosophy, psychology, and computation have discovered new mechanisms for learning the causal structure of the world. This new work provides a rigorous, formal basis for theory theories of concepts and cognitive development, and moreover, the causal learning mechanisms it has uncovered go dramatically beyond the traditional mechanisms of both nativist theories, such as modularity theories, and empiricist

ones, such as association or connectionism. Studies of Strategizing and Organizing Springer Science & Business Media This book is intended for anyone, regardless of discipline, who is interested in the use of statistical methods to help obtain scientific explanations or to predict the outcomes of actions, experiments or policies. Much of G. Udny Yule's work illustrates a vision of statistics whose goal is to investigate when and how causal influences may be reliably inferred, and their

comparative strengths estimated, from statistical samples. Yule's enterprise has been largely replaced by Ronald Fisher's conception, in which there is a fundamental cleavage between experimental and non experimental inquiry, and statistics is largely unable to aid in causal inference without randomized experimental trials. Every now and then members of the statistical community express misgivings about this turn of events, and, in our view, rightly so. Our work represents a return to

something like Yule's conception of the enterprise of theoretical statistics and its potential practical benefits. If intellectual history in the 20th century had gone otherwise, there might have been a discipline to which our work belongs. As it happens, there is not. We develop material that belongs to statistics, to computer science, and to philosophy; the combination may not be entirely satisfactory for specialists in any of these subjects. We hope it is nonetheless satisfactory

for its purpose. IJCAI-85, August 18-23, 1985 Oxford University Press, USA
A concise and self-contained introduction to causal inference, increasingly important in data science and machine learning. The mathematization of causality is a relatively recent development, and has become increasingly important in data science and machine learning. This book offers a self-contained and concise introduction to causal models and how to learn

them from data. After explaining the need for causal models and discussing some of the principles underlying causal inference, the book teaches readers how to use causal models: how to compute intervention distributions, how to infer causal models from observational and interventional data, and how causal ideas could be exploited for classical machine learning problems. All of these topics are discussed first in terms of two variables and then in the more

general multivariate case. The bivariate case turns out to be a particularly hard problem for causal learning because there are no conditional independences as used by classical methods for solving multivariate cases. The authors consider analyzing statistical asymmetries between cause and effect to be highly instructive, and they report on their decade of intensive research into this problem. The book is accessible to readers with a background in machine

learning or statistics, and can be used in graduate courses or as a reference for researchers. The text includes code snippets that can be copied and pasted, exercises, and an appendix with a summary of the most important technical concepts.

Nature's Capacities and Their

Measurement John Wiley & Sons

In 2020 fand der jährliche Workshop des Faunhofer IOSB und the Lehrstuhls für interaktive Echtzeitsysteme statt. Vom 27. bis zum 31. Juli

trugen die Doktoranden der beiden Institute über den Stand ihrer Forschung vor in Themen wie KI, maschinellen Lernen, computer vision, usage control, Metrologie vor. Die Ergebnisse dieser Vorträge sind in diesem Band als technische Berichte gesammelt. - In 2020, the annual joint workshop of the Fraunhofer IOSB and the Vision and Fusion Laboratory of the KIT was hosted at the IOSB in Karlsruhe. For a week from the 27th to the 31st July the doctoral students

of both institutions presented extensive reports on the status of their research and discussed topics ranging from computer vision and optical metrology to network security, usage control and machine learning. The results and ideas presented at the workshop are collected in this book.

Causal Inference in Statistics Clarendon Press
The three volume set LNAI 9851, LNAI 9852, and LNAI 9853 constitutes the refereed proceedings of the European Conference

on Machine Learning and Knowledge Discovery in Databases, ECML PKDD 2016, held in Riva del Garda, Italy, in September 2016. The 123 full papers and 16 short papers presented were carefully reviewed and selected from a total of 460 submissions. The papers presented focus on practical and real-world studies of machine learning, knowledge discovery, data mining; innovative prototype implementations or mature systems that use machine learning

techniques and knowledge discovery processes in a real setting; recent advances at the frontier of machine learning and data mining with other disciplines. Part I and Part II of the proceedings contain the full papers of the contributions presented in the scientific track and abstracts of the scientific plenary talks. Part III contains the full papers of the contributions presented in the industrial track, short papers describing demonstration, the nectar papers, and

the abstracts of the industrial plenary talks. *Controversy: Misuse, and Subtlety* Routledge
 Discovering Causal Structure Artificial Intelligence, Philosophy of Science, and Statistical Modeling Academic Press
Computation, Causation, and Discovery KIT Scientific Publishing
 Discovering Causal Structure: Artificial Intelligence, Philosophy of Science, and Statistical Modeling provides information pertinent to the fundamental aspects of a computer program

called TETRAD. This book discusses the version of the TETRAD program, which is designed to assist in the search for causal explanations of statistical data. or alternative models. This text then examines the notion of applying artificial intelligence methods to problems of statistical model specification. Other chapters consider how the TETRAD program can help to find god alternative models where they exist, and how it can help detect the existence of important

neglected variables. This book discusses as well the procedures for specifying a model or models to account for non-experimental or quasi-experimental data. The final chapter presents a description of the format of input files and a description of each command. This book is a valuable resource for social scientists and researchers.

Rational Constructivism in Cognitive Development
 Academic Press
 Linear structural equation

models (SEMs) are multivariate models which encode direct causal effects. We focus on SEMs in which unobserved latent variables have been marginalized and only observed variables are explicitly modeled. In this thesis, we study three problems where the distribution of the stochastic errors in the SEMs, and thus the corresponding data, are non-Gaussian. Throughout, we utilize graphical models to represent the causal structure. First, we

consider estimation of model parameters using an empirical likelihood framework when the causal structure is known. Asymptotically, under very mild conditions on the error distributions, this approach yields normal estimators and well calibrated confidence intervals and hypothesis tests. However, the procedure can be computationally expensive and suffer from poor performance when the sample size is small. We propose several modifications to a naive

procedure and show that empirical likelihood can be an attractive alternative to existing methods when the data is non-Gaussian. The models considered in this section correspond to general mixed graphs. We then consider the problem of estimating the underlying structure. Most of the previous work on causal discovery focuses on estimating an equivalence class of graphs rather than a specific graph. However, Shimizu et al. (2016) show that under certain conditions, when

the errors are non-Gaussian, the exact causal structure can be identified. We extend these results in two ways. In Chapter 3, we show that when there is no unobserved confounding and the causal structure is suitably sparse, the identification results can be extended to the high-dimensional setting where the number of variables exceed the number of observations. The models considered correspond to directed acyclic graphs (DAGs) with bounded in-degree. In Chapter 4, we

show that non-Gaussian errors also allow for identification of the specific graph when unobserved confounding occurs in a restricted way. In particular, we consider the case where the underlying model corresponds to a bow-free acyclic path diagram (BAP). The proposed method consistently estimates the underlying structure, and unlike previous results does not require the number of latent variables or distribution of the errors to be specified in

advance.

Encyclopedia of Epidemiology Springer Science & Business Media
The Encyclopedia of Epidemiology presents state-of-the-art information from the field of epidemiology in a less technical and accessible style and format. With more than 600 entries, no single reference provides as comprehensive a resource in as focused and appropriate manner. The entries cover every major facet of epidemiology, from risk ratios to case-control

studies to mediating and moderating variables, and much more. Relevant topics from related fields such as biostatistics and health economics are also included.

IJCAI-91 Springer Science & Business Media

This volume features the complete text of the material presented at the Twenty-Fourth Annual Conference of the Cognitive Science Society. As in previous years, the symposium included an interesting mixture of papers on many topics from researchers with

diverse backgrounds and different goals, presenting a multifaceted view of cognitive science. The volume includes all papers, posters, and summaries of symposia presented at this leading conference that brings cognitive scientists together. The 2002 meeting dealt with issues of representing and modeling cognitive processes as they appeal to scholars in all subdisciplines that comprise cognitive science: psychology, computer science,

neuroscience, linguistics, and philosophy.

[A Primer](#) Routledge

This volume focuses on the abuse of statistical inference in scientific and statistical literature, as well as in a variety of other sources, presenting examples of misused statistics to show that many scientists and statisticians are unaware of, or unwilling to challenge the chaotic state of statistical practices.;The book: provides examples of ubiquitous statistical tests taken from the biomedical

and behavioural sciences, economics and the statistical literature; discusses conflicting views of randomization, emphasizing certain aspects of induction and epistemology; reveals fallacious practices in statistical causal inference, stressing the misuse of regression models and time-series analysis as instant formulas to draw causal relationships; treats constructive uses of statistics, such as a modern version of Fisher's puzzle, Bayesian analysis,

Shewhart control chart, descriptive statistics, chi-square test, nonlinear modeling, spectral estimation and Markov processes in quality control.

Machine Learning and Knowledge Discovery in Databases Springer

This volume offers selected papers exploring issues arising from scientific discovery in the social sciences. It features a range of disciplines including behavioural sciences, computer science, finance, and statistics with an

emphasis on philosophy. The first of the three parts examines methods of social scientific discovery. Chapters investigate the nature of causal analysis, philosophical issues around scale development in behavioural science research, imagination in social scientific practice, and relationships between paradigms of inquiry and scientific fraud. The next part considers the practice of social science discovery. Chapters discuss the lack of genuine scientific discovery in finance

where hypotheses concern the cheapness of securities, the logic of scientific discovery in macroeconomics, and the nature of that what discovery with the Solidarity movement as a case study. The final part covers formalising theories in social science. Chapters analyse the abstract model theory of institutions as a way of representing the structure of scientific theories, the semi-automatic generation of cognitive science theories, and computational process

models in the social sciences. The volume offers a unique perspective on scientific discovery in the social sciences. It will engage scholars and students with a multidisciplinary interest in the philosophy of science and social science.

[Computer Applications in the Social Sciences](#) MIT Press

This book constitutes the refereed proceedings of the Second International Symposium on Benchmarking, Measuring, and

Optimization, Bench 2019, held in Denver, CO, USA, in November 2019. The 20 full papers and 11 short papers presented were carefully reviewed and selected from 79 submissions. The papers are organized in topical sections named: Best Paper Session; AI Challenges on Cambircon using AIBenc; AI Challenges on RISC-V using AIBench; AI Challenges on X86 using AIBench; AI Challenges on 3D Face Recognition using AIBench; Benchmark; AI and Edge; Big Data;

Datacenter; Performance Analysis; Scientific Computing.
Proceedings of the Twelfth International Conference on Artificial Intelligence, Darling Harbour, Sydney, Australia, 24-30 August 1991 Springer
In science, business, and policymaking -- anywhere data are used in prediction -- two sorts of problems requiring very different methods of analysis often arise. The first, problems of recognition and classification, concerns learning how to use some

features of a system to accurately predict other features of that system. The second, problems of causal discovery, concerns learning how to predict those changes to some features of a system that will result if an intervention changes other features. This book is about the second -- much more difficult -- type of problem. Typical problems of causal discovery are: How will a change in commission rates affect the total sales of a company? How will a reduction in cigarette

smoking among older smokers affect their life expectancy? How will a change in the formula a college uses to award scholarships affect its dropout rate? These sorts of changes are interventions that directly alter some features of the system and perhaps -- and this is the question -- indirectly alter others. The contributors discuss recent research and applications using Bayes nets or directed graphic representations, including feedback or recursive

systems. The book contains a thorough discussion of foundational issues, algorithms, proof techniques, and applications to economics, physics, biology, educational research, and other areas.

Proceedings of the Ninth International Joint Conference on Artificial Intelligence Academic Press

The three volume set LNAI 9851, LNAI 9852, and LNAI 9853 constitutes the refereed proceedings of the European Conference on Machine Learning and

Knowledge Discovery in Databases, ECML PKDD 2016, held in Riva del Garda, Italy, in September 2016. The 123 full papers and 16 short papers presented were carefully reviewed and selected from a total of 460 submissions. The papers presented focus on practical and real-world studies of machine learning, knowledge discovery, data mining; innovative prototype implementations or mature systems that use machine learning techniques and

knowledge discovery processes in a real setting; recent advances at the frontier of machine learning and data mining with other disciplines. Part I and Part II of the proceedings contain the full papers of the contributions presented in the scientific track and abstracts of the scientific plenary talks. Part III contains the full papers of the contributions presented in the industrial track, short papers describing demonstration, the nectar papers, and the abstracts of the

industrial plenary talks.

Computer Science and Software Engineering

Oxford University Press,
USA

One of the true classics in Marketing is now thoroughly revised and updated. "Marketing Theory" is both evolutionary and revolutionary. As in earlier editions, Shelby Hunt focuses on the marketing discipline's multiple stakeholders. He articulates a philosophy of science-based 'tool kit' for developing and analyzing theories, law-like

generalizations, and explanations in marketing science. Hunt adds a new dimension to the book, however, by developing arguments for the position that Resource-Advantage Theory provides the foundation for a general theory of marketing and a theoretical foundation for business and marketing strategy. Also new to this edition are four chapters adapted and updated from Hunt's "Controversy in Marketing Theory" that analyze the 'philosophy debates' within the field, including controversies

with respect to scientific realism, qualitative methods, truth, and objectivity.

Proceedings of the Twenty-fourth Annual Conference of the Cognitive Science

Society Springer Science & Business Media

This book summarizes recent advances in causal inference and underscores the paradigmatic shifts that must be undertaken in moving from traditional statistical analysis to causal analysis of multivariate data. Special

emphasis is placed on the assumptions that underlie all causal inferences, the languages used in formulating those assumptions, the conditional nature of all causal and counterfactual claims, and the methods that have been developed for the assessment of such claims. These advances are illustrated using a general theory of causation based on the Structural Causal Model (SCM), which subsumes and unifies other approaches to causation, and provides a coherent

mathematical foundation for the analysis of causes and counterfactuals. In particular, the paper surveys the development of mathematical tools for inferring (from a combination of data and assumptions) answers to three types of causal queries: those about (1) the effects of potential interventions, (2) probabilities of counterfactuals, and (3) direct and indirect effects (also known as "mediation"). Finally, the paper defines the formal and conceptual

relationships between the structural and potential-outcome frameworks and presents tools for a symbiotic analysis that uses the strong features of both. The tools are demonstrated in the analyses of mediation, causes of effects, and probabilities of causation. *Quantified Representation of Uncertainty and Imprecision* CRC Press
Many of the concepts and terminology surrounding modern causal inference can be quite intimidating to the novice. Judea Pearl presents a book ideal for

beginners in statistics, providing a comprehensive introduction to the field of causality. Examples from classical statistics are presented throughout to demonstrate the need for causality in resolving decision-making dilemmas posed by data. Causal methods are also compared to traditional statistical methods, whilst questions are provided at the end of each section to aid student learning.

Database Systems for Advanced Applications
OUP Oxford

Information is a recognized fundamental notion across the sciences and humanities, which is crucial to understanding physical computation, communication, and human cognition. The Philosophy of Information brings together the most important perspectives on information. It includes major technical approaches, while also setting out the historical backgrounds of information as well as its contemporary role in many academic fields. Also, special unifying

topics are high-lighted that play across many fields, while we also aim at identifying relevant themes for philosophical reflection. There is no established area yet of Philosophy of Information, and this Handbook can help shape one, making sure it is well grounded in scientific expertise. As a side benefit, a book like this can facilitate contacts and collaboration among diverse academic milieus sharing a common interest in information. • First overview of the formal and technical

issues involved in the philosophy of information

- Integrated presentation of major mathematical

approaches to

information, form

computer science, information theory, and logic • Interdisciplinary

themes across the

traditional boundaries of natural sciences, social sciences, and humanities.

Related with Discovering Causal Structure From Observations:

- 12 3 Wiring Diagram : [click here](#)