

Subjective Understanding Computer Models Of Belief Systems Computer Science

Modeling human understanding of natural language requires a model of the processes underlying human thought. No two people think exactly alike; different people subscribe to different beliefs and are motivated by different goals in their activities. A theory of subjective understanding has been proposed to account for subjectively-motivated human thinking ranging from ideological belief to human discourse and personality traits. A process-model embodying this theory has been implemented in a computer system, POLITICS. POLITICS models human ideological reasoning in understanding the natural language text of international political events. POLITICS can model either liberal or conservative ideologies. Each ideology produces a different interpretation of the input event. POLITICS demonstrates its understanding by answering questions in natural language question-answer dialogs.

Information systems are large repositories of factual and inferential knowledge intended to be queried and maintained by a wide variety of users with different backgrounds and work tasks. The community of potential information system users is growing rapidly with advances in hardware and software technology that permit computer/communications support for more and more application areas. Unfortunately, it is often felt that progress in user interface technology has not quite matched that of other areas. Technical

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solutions such as computer graphics, natural language processing, or man-machine-man communications in office systems are not enough by themselves. They should be complemented by system features that ensure cooperative behavior of the interfaces, thus reducing the training and usage effort required for successful interaction. In analogy to a human dialog partner, we call an interface cooperative if it does not just accept user requests passively or answer them literally, but actively attempts to understand the users' intentions and to help them solve their application problems.

This leads to the central question addressed by this book: What makes an information systems interface cooperative, and how do we provide capabilities leading to cooperative interfaces? Many answers are possible. A first aspect concerns the formulation and acceptance of user requests. Many researchers assume that such requests should be formulated in natural language.

Interest in the functioning of the human mind can certainly be traced to Plato and Aristotle who often dealt with issues of perceptions and motivations. While the Greeks may have contemplated the human condition, the modern study of the human mind can be traced back to Sigmund Freud (1900) and the psychoanalytic movement. He began the exploration of both conscious and unconscious factors that propelled humans to engage in a variety of behaviors. While Freud's focus may have been on repressed sexuality our focus in this volume lies elsewhere. We are concerned herein with the expression of the cognitions, motivations, passions, intentions, perceptions, and

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emotions associated with entrepreneurial behaviors. We are attempting in this volume to expand on the work of why entrepreneurs think differently from other people (Baron, 1998, 2004). During the decade of the 1990s the field of entrepreneurship research seemingly abandoned the study of the entrepreneur. This was the result of earlier research not being able to demonstrate some unique entrepreneurial personality, trait, or characteristic (Brockhaus and Horwitz, 1986). It was both a naïve and simplistic search for the “holy grail” of what made entrepreneurs the way they are. However, many of the researchers in this volume have never given up the belief that a better understanding of the mind of the entrepreneur would give us a better understanding of the processes that lead to the creation of new ventures.

This book highlights cutting-edge research relevant to the building of a computational model of reading comprehension, as in the processing and understanding of a natural language text or story. The book takes an interdisciplinary approach to the study of reading, with contributions from computer science, psychology, and philosophy.

Contributors cover the theoretical and psychological foundations of the research in discussions of what it means to understand a text, how one builds a computational model, and related issues in knowledge representation and reasoning. The book also addresses some of the broader issues that a natural language system must deal with, such as reading in context, linguistic novelty, and information extraction.

Most artificial intelligence research investigates intelligent behavior for a single

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agent--solving problems heuristically, understanding natural language, and so on. Distributed Artificial Intelligence (DAI) is concerned with coordinated intelligent behavior: intelligent agents coordinating their knowledge, skills, and plans to act or solve problems, working toward a single goal, or toward separate, individual goals that interact. DAI provides intellectual insights about organization, interaction, and problem solving among intelligent agents. This comprehensive collection of articles shows the breadth and depth of DAI research. The selected information is relevant to emerging DAI technologies as well as to practical problems in artificial intelligence, distributed computing systems, and human-computer interaction. "Readings in Distributed Artificial Intelligence" proposes a framework for understanding the problems and possibilities of DAI. It divides the study into three realms: the natural systems approach (emulating strategies and representations people use to coordinate their activities), the engineering/science perspective (building automated, coordinated problem solvers for specific applications), and a third, hybrid approach that is useful in analyzing and developing mixed collections of machines and human agents working together. The editors introduce the volume with an important survey of the motivations, research, and results of work in DAI. This historical and conceptual overview combines with chapter introductions to guide the reader through this fascinating field. A unique and extensive bibliography is also provided.

Electronic business today is not only business transactions supported in information

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and communication technologies; it is a new way of communicating and integrating with customers, suppliers, employees and other stakeholders. In this scenario, electronic business is now part of a wider economic context that is causing radical transformations in business and organizations including the entire value chain from customer service to supply chain management. One of the areas affected is marketing. Given that the new technologies have enabled firms to reach out to global customers and has provided them with the opportunity to customize their strategies and offerings in an unprecedented way, the dynamics of marketing must be surveyed in order to study the impact of new trends like mobile customer relationship management or mass customization on marketing function. This book provides an overview of the e-Business and Marketing areas by uniting various papers from these fields. "Electronic Business and Marketing" includes theory and practice on electronic business and marketing from an academic and professional viewpoint providing also a forum for the exchange of research ideas and industry practices in these knowledge areas among practitioners, researchers and students.

Castel Ivano, originally built in 1375, is one of many beautiful and impressive castles strategically placed atop hills in Trentino's Valsugana in Northern Italy. It was in this castle on a series of brilliant sunny crisp November days in 1990 that an international group of computer scientists and cognitive scientists met at a workshop to discuss theoretical and applied issues concerning communication from an Artificial Intelligence

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and Cognitive Science perspective. About forty people, representing nine countries, participated in the workshop, either as speakers, discussants, or observers. The main motivation for the workshop was to address the question of whether and how current computational approaches to communication can or might be able to accommodate the range of complexities that characterize both human human and human-machine communication. The chapters in this book are based on the papers that were presented at the workshop. They are presented in an order that is determined primarily by the specificity of the topics they address. The initial chapters are more theoretical in nature with an emphasis on formal approaches to communication. The middle chapters focus on particular application issues, such as the generation of multimedia documents and the role of planning in building systems to support human-human or human-machine interaction. The final few chapters consider more general issues relating to communication, such as the influence of social structure on, and the role of affect in communication.

Introducing issues in dynamic memory and case-based reasoning, this comprehensive volume presents extended descriptions of four major programming efforts conducted at Yale during the past several years. Each descriptive chapter is followed by a companion chapter containing the micro program version of the information. The authors emphasize that the only true way to learn and understand any AI program is to program it yourself. To this end, the book develops a deeper and richer understanding of the content through LISP programming instructions that allow the running, modification, and extension of the micro programs developed by the authors.

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First Published in 1988. A collection of papers, presentations and poster summaries from the tenth annual conference of the Cognitive Science Society in Montreal, Canada August 1988.

Language and Comprehension

Psychology and philosophy have long studied the nature and role of explanation. More recently, artificial intelligence research has developed promising theories of how explanation facilitates learning and generalization. By using explanations to guide learning, explanation-based methods allow reliable learning of new concepts in complex situations, often from observing a single example. The author of this volume, however, argues that explanation-based learning research has neglected key issues in explanation construction and evaluation. By examining the issues in the context of a story understanding system that explains novel events in news stories, the author shows that the standard assumptions do not apply to complex real-world domains. An alternative theory is presented, one that demonstrates that context -- involving both explainer beliefs and goals -- is crucial in deciding an explanation's goodness and that a theory of the possible contexts can be used to determine which explanations are appropriate. This important view is demonstrated with examples of the performance of ACCEPTER, a computer system for story understanding, anomaly detection, and explanation evaluation.

The past decade has witnessed an explosion of interest and research on close relationships and social cognition. In both areas, numerous handbooks, textbooks, and journal articles have been published. However, it is the editors' impression that although cognitive theories and concepts have filtered through to research dealing with close relationships, much of this research reflects a relatively untutored understanding of the theoretical and empirical work in

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social cognition. Conversely, the research literature that provides a more sophisticated perspective on the role of cognition in close relationships typically reveals a relatively limited knowledge of the literature on close relationships. As researchers who have worked in both social cognitive processes and close relationships, Fletcher and Fincham are convinced that each field has much to offer the other. In fact, their book is based on two important postulates: first, that a social cognitive framework offers a valuable resource for developing our understanding of close relationships; and, second, that studying cognition within close relationships has the potential to inform our understanding of basic social cognitive processes.

Machine Learning: An Artificial Intelligence Approach contains tutorial overviews and research papers representative of trends in the area of machine learning as viewed from an artificial intelligence perspective. The book is organized into six parts. Part I provides an overview of machine learning and explains why machines should learn. Part II covers important issues affecting the design of learning programs—particularly programs that learn from examples. It also describes inductive learning systems. Part III deals with learning by analogy, by experimentation, and from experience. Parts IV and V discuss learning from observation and discovery, and learning from instruction, respectively. Part VI presents two studies on applied learning systems—one on the recovery of valuable information via inductive inference; the other on inducing models of simple algebraic skills from observed student performance in the context of the Leeds Modeling System (LMS). This book is intended for researchers in artificial intelligence, computer science, and cognitive psychology; students in artificial intelligence and related disciplines; and a diverse range of readers, including computer scientists, robotics experts, knowledge engineers, educators, philosophers, data analysts, psychologists, and

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electronic engineers.

First published in 1982. Routledge is an imprint of Taylor & Francis, an informa company.

This second edition has been completely updated to include new studies, new computer applications and an additional chapter on problems and issues that can arise when carrying out content analysis in four major categories: measurement, indication, representation and interpretation.

First published in 1990. Routledge is an imprint of Taylor & Francis, an informa company.

by Michael G. Dyer Natural language processing (NLP) is an area of research within Artificial Intelligence (AI) concerned with the comprehension and generation of natural language text. Comprehension involves the dynamic construction of conceptual representations, linked by causal relationships and organized/indexed for subsequent retrieval. Once these conceptual representations have been created, comprehension can be tested by means of such tasks as paraphrasing, question answering, and summarization. Higher-level cognitive tasks are also modeled within the NLP paradigm and include: translation, acquisition of word meanings and concepts through reading, analysis of goals and plans in multi-agent environments (e. g. , coalition and counterplanning behavior by narrative characters), invention of novel stories, recognition of abstract themes (such as irony and hypocrisy), extraction of the moral or point of a story, and justification/refutation of beliefs through argumentation. The robustness of conceptually-based text comprehension systems is directly related to the nature and scope of the knowledge constructs applied during conceptual analysis of the text. Until recently, conceptually-based natural language systems were developed for, and applied to, the task of narrative comprehension (Dyer, 1983a; Schank and Abelson, 1977; Wilensky, 1983). These

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systems worked by recognizing the goals and plans of narrative characters, and. using this knowledge to build a conceptual representation of the narrative, xx UNDERSTANDING EDITORIAL TEXT including actions and intentions which must be inferred to complete the representation. A large portion of text appearing in newspapers and magazines, however, is editorial in nature.

..". an excellent collection... " -- Journal of Language Social Psychology An important collection of original essays by well-known scholars debating the questions of logical versus psychologically-based interpretations of language.

First Published in 1992. Routledge is an imprint of Taylor & Francis, an informa company. Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

For well over a decade researchers in international relations have sought ways to combine the rigor of quantitative techniques with the richness of qualitative data. Many have discovered that artificial intelligence computer models allow them to do just that. Computer programs modeling international interactions and foreign policy decision making attempt to reflect such human characteristics as learning, memory, and adaptation. In this volume of original essays, distinguished scholars present a comprehensive overview of their research and reflect on the potential of artificial intelligence as a tool for furthering our understanding of international affairs. The contributors take a broad look at the early stirrings of interest in artificial intelligence as a potentially useful method of political analysis, exploring such topics as intentionality, time sense, and knowledge representation. The work also focuses on the current

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state of artificial intelligence and examines its general areas of emphasis: international interaction, decision making groups, and cognitive processes in international politics. The contributors represent a cross section of different approaches to using artificial intelligence and reflect the major research programs across the country in this new international relations subfield

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This book is the third volume in a series that provides a hands-on perspective on the evolving theories associated with Roger Schank and his students. The primary focus of this volume is on constructing explanations. All of the chapters relate to the problem of building computer programs that can develop hypotheses about what might have caused an observed event. Because most researchers in natural language processing don't really want to work on inference, memory, and learning issues, most of their sample text fragments are chosen carefully to de-emphasize the need for non text-related reasoning. The ability to come up with hypotheses about what is really going on in a story is a hallmark of human intelligence. The biggest difference between truly intelligent readers and less intelligent ones is the extent to which the reader can go beyond merely understanding the explicit statements being communicated. Achieving a creative level of understanding means developing hypotheses about questions for which there may be no conclusively correct answer at all. The focus of the lab, during the period documented in this book, was to work on getting a computer program to do that. The volume adopts a case-based approach to the construction of explanations which suggests that the main steps in the process of explaining a given anomaly are as follows: *

- * Retrieve an explanation that might be relevant to the anomaly.
- * Evaluate whether the retrieved

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explanation makes sense when applied to the current anomaly. * Adapt the explanation to produce a new variant that fits better if the retrieved explanation doesn't fit the anomaly perfectly.

A recent area of interest in the Artificial Intelligence community has been the application of massively parallel algorithms to enhance the choice mechanism in traditional AI problems. This volume provides a detailed description of how marker-passing -- a parallel, non-deductive, spreading activation algorithm -- is a powerful approach to refining the choice mechanisms in an AI problem-solving system. The author scrutinizes the design of both the algorithm and the system, and then reviews the current literature and research in planning and marker passing. Also included: a comparison of this computer model with some standard cognitive models, and a comparison of this model to the "connectionist" approach.

"Papers presented at the 1983 NYU Symposium on Artificial Intelligence Applications for Business"--Pref.

Database Aesthetics examines the database as cultural and aesthetic form, explaining how artists have participated in network culture by creating data art. The essays in this collection look at how an aesthetic emerges when artists use the vast amounts of available information as their medium. Here, the ways information is ordered and organized become artistic choices, and artists have an essential role in influencing and critiquing the digitization of daily life.

Contributors: Sharon Daniel, U of California, Santa Cruz; Steve Deitz, Carleton College; Lynn Hershman Leeson, U of California, Davis; George Legrady, U of California, Santa Barbara; Eduardo Kac, School of the Art Institute of Chicago; Norman Klein, California Institute of the Arts; John Klima; Lev Manovich, U of California, San Diego; Robert F. Nideffer, U of California,

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Irvine; Nancy Paterson, Ontario College of Art and Design; Christiane Paul, School of Visual Arts in New York; Marko Peljhan, U of California, Santa Barbara; Warren Sack, U of California, Santa Cruz; Bill Seaman, Rhode Island School of Design; Grahame Weinbren, School of Visual Arts, New York. Victoria Vesna is a media artist, and professor and chair of the Department of Design and Media Arts at the University of California, Los Angeles.

This book constitutes the thoroughly refereed proceedings of the 12th Italian Research Conference on Digital Libraries, IRCDL 2016, held in Firenze, Italy, in February 2016. The 15 papers presented were carefully selected from 23 submissions and cover topics such as formal methods, long-term preservation, metadata creation, management and curation, multimedia, ontology and linked data. The papers deal with numerous multidisciplinary aspects ranging from computer science to humanities in the broader sense, including research areas such as archival and library information sciences; information management systems; semantic technologies; information retrieval; new knowledge environments.

An exhaustive work that represents a landmark exploration of both the philosophical and methodological issues surrounding the search for true artificial intelligence. Distinguished psychologists, computer scientists, philosophers, and programmers from around the world debate weighty issues such as whether a self-conscious computer would create an internet 'world mind'. This hugely important volume explores nothing less than the future of the human race itself.

First Published in 1986. Routledge is an imprint of Taylor & Francis, an informa company.

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This book provides an overview of computer techniques and tools — especially from artificial intelligence (AI) — for handling legal evidence, police intelligence, crime analysis or detection, and forensic testing, with a sustained discussion of methods for the modelling of reasoning and forming an opinion about the evidence, methods for the modelling of argumentation, and computational approaches to dealing with legal, or any, narratives. By the 2000s, the modelling of reasoning on legal evidence has emerged as a significant area within the well-established field of AI & Law. An overview such as this one has never been attempted before. It offers a panoramic view of topics, techniques and tools. It is more than a survey, as topic after topic, the reader can get a closer view of approaches and techniques. One aim is to introduce practitioners of AI to the modelling legal evidence. Another aim is to introduce legal professionals, as well as the more technically oriented among law enforcement professionals, or researchers in police science, to information technology resources from which their own respective field stands to benefit. Computer scientists must not blunder into design choices resulting in tools objectionable for legal professionals, so it is important to be aware of ongoing controversies. A survey is provided of argumentation tools or methods for reasoning about the evidence. Another class of tools considered here is intended to assist in organisational aspects of

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managing of the evidence. Moreover, tools appropriate for crime detection, intelligence, and investigation include tools based on link analysis and data mining. Concepts and techniques are introduced, along with case studies. So are areas in the forensic sciences. Special chapters are devoted to VIRTOPSY (a procedure for legal medicine) and FLINTS (a tool for the police). This is both an introductory book (possibly a textbook), and a reference for specialists from various quarters.

The ability to learn is a fundamental characteristic of intelligent behavior. Consequently, machine learning has been a focus of artificial intelligence since the beginnings of AI in the 1950s. The 1980s saw tremendous growth in the field, and this growth promises to continue with valuable contributions to science, engineering, and business. Readings in Machine Learning collects the best of the published machine learning literature, including papers that address a wide range of learning tasks, and that introduce a variety of techniques for giving machines the ability to learn. The editors, in cooperation with a group of expert referees, have chosen important papers that empirically study, theoretically analyze, or psychologically justify machine learning algorithms. The papers are grouped into a dozen categories, each of which is introduced by the editors.

Crucial reading for those concerned with education and school reform.

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This textbook is intended for graduate students in computer science and linguistics who are interested in developing expertise in natural language processing (NLP) and in those aspects of artificial intelligence which are concerned with computer models of language comprehension. The text is somewhat different from a number of other excellent textbooks in that its foci are more on the linguistic and psycho linguistic prerequisites and on foundational issues concerning human linguistic behavior than on the description of the extant models and algorithms. The goal is to make the student, undertaking the enormous task of developing computer models for NLP, well aware of the major difficulties and unsolved problems, so that he or she will not begin the task (as it has often been done) with overoptimistic hopes or claims about the generalizability of models, when such hopes and claims are inconsistent either with some aspects of the formal theory or with known facts about human cognitive behavior. Thus, I try to enumerate and explain the variety of cognitive, linguistic, and pragmatic data which must be understood and formalized before they can be incorporated into a computer model.

Someday computers will be artists. They'll be able to write amusing and original stories, invent and play games of unsurpassed complexity and inventiveness, tell jokes and suffer writer's block. But these things will require computers that can

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both achieve artistic goals and be creative. Both capabilities are far from accomplished. This book presents a theory of creativity that addresses some of the many hard problems which must be solved to build a creative computer. It also presents an exploration of the kinds of goals and plans needed to write simple short stories. These theories have been implemented in a computer program called MINSTREL which tells stories about King Arthur and his knights. While far from being the silicon author of the future, MINSTREL does illuminate many of the interesting and difficult issues involved in constructing a creative computer. The results presented here should be of interest to at least three different groups of people. Artificial intelligence researchers should find this work an interesting application of symbolic AI to the problems of story-telling and creativity. Psychologists interested in creativity and imagination should benefit from the attempt to build a detailed, explicit model of the creative process. Finally, authors and others interested in how people write should find MINSTREL's model of the author-level writing process thought-provoking. Throughout Herbert Simon's wide-ranging career—in public administration, business administration, economics, cognitive psychology, philosophy, artificial intelligence, and computer science—his central aim has been to explain the nature of the thought processes that people use in making decisions. The third volume

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of Simon's collected papers continues this theme, bringing together work on this and other economics-related topics that have occupied his attention in the 1980s and 1990s: how to represent causal ordering formally in dynamic systems, the implications for society of new electronic information systems, employee and managerial motivation in the business firm (specifically the implications for economics of the propensity of human beings to identify with the goals of organizations), and the state of economics itself. Offering alternative models based on such concepts as satisficing (acceptance of viable choices that may not be the undiscoverable optimum) and bounded rationality (the limited extent to which rational calculation can direct human behavior), Simon shows concretely why more empirical research based on experiments and direct observation, rather than just statistical analysis of economic aggregates, is needed. The twenty-seven articles, in five sections, each with an introduction by the author, examine the modeling of economic systems, technological change: information technology, motivation and the theory of the firm, and behavioral economics and bounded rationality.

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