

Book reviews

Computer addiction? A study of computer dependency reviewed by Dr Catherine Cassell, Sheffield City Polytechnic.

AI and expertise: heuristic search, inference engines, automatic proving reviewed by Dr John Washbrook, Department of Computer Science, University College London.

Artificial intelligence, expert systems and languages in modelling and simulation—Proceedings of the 1st IMACS Symposium on Artificial Intelligence 1987 reviewed by Dr Andrew Elias, Department of Computer Science, University College London.

Computer addiction? A study of computer dependency by Margaret A. Shotton 1989, Taylor and Francis, pp 342, £32.00 (cloth), £12.00 (paper).

Since the explosion of the home computing boom during the 1980s popular images, myths and stories have abounded about the existence of computer addicts, the “micro in the attic” syndrome. Such images focus typically on the young and probably spotty youth, huddled over his micro, hacking away into the crucial computer systems of the world. Such an individual leaves behind the computer widow who clearly does not understand him or his obsession with all things technological. The reality of such images has rarely been investigated. Though studies have been made of the ways in which individuals interact with computers (e.g. Turkle, 1984), such work has been criticized for its neglect of the social context of technology and has been accused of glorifying uncritically the relationships that individuals have with their computers (Linn, 1985).

Margaret Shotton’s book therefore provides a much needed analysis of the extent to which computer dependency actually exists, the types of people likely to become computer dependent, and the implications of that dependency for close relatives and friends. The book itself is based on an extremely thorough research project to investigate the existence of computer dependency and its implications. The investigation included a comprehensive battery of psychological tests, together with questionnaires about computing behaviour and other leisure interests, conducted on 106 respondents to national publicity who considered themselves to be “computer dependents”. Control groups of computer owners and non-computer owners allowed for comparisons to be made. Additionally interviews took place with dependents and their partners.

This rich source of data forms the basis for the book. Analysis of the demographic data suggests that the average computer dependent is, perhaps not surprisingly, male, around 30 years old and with a high level of educational achievement. Shotton examines how the dependents differ from the controls in a number of ways, examining the nature of the dependency; computing in relation to other leisure activities; personality characteristics; and a consideration of the factors in early life that might have led to the development of computer dependency. A separate chapter deals exclusively with why families are so under-represented in the sample (6 out of 106). Each issue is treated with characteristic methodological rigour and sensitive interpretation and explanation of the results.

The latter chapters I found particularly interesting. Within these Shotton characterizes different types of computer dependency. Dependents are labelled as networkers, workers or explorers based on the different approaches that they have to computer use. It seems that essentially the computer can be all things to all people. Chapter 10 examines the advantages and disadvantages of dependency. All the dependents and their partners recognized the existence of the syndrome, though there was disagreement between the two groups as to whether dependency was advantageous or disadvantageous for the individual concerned. Dependents recognized overwhelmingly

that their dependency was useful to them in terms of intellectual development, job prospects, self-confidence and self-esteem etc. Their partners however generally saw the dependency as having negative effects, particularly on social relationships.

Shotton suggests that the results from her study reveal that although computer dependency does occur for a small proportion of computer users, its impact on those people is not as negative or as serious as popular images would suggest. Excessive computer use does not turn sociable individuals into recluses. Rather those that become dependent are those that would be socially isolated anyway. Computer dependents do not differ significantly from other types of hobbyists or enthusiasts and in most cases are merely creating their own personal challenges and excitements through computer use. Within the conclusions, computer dependency is firmly located within the context of everyday living in the 1990s where the philosophies of self-need and individuality are cultivated at the expense of the group.

As a result of comprehensive empirical research Margaret Shotton has succeeded in describing, analyzing and understanding the world of the computer dependent without resorting to stereotypical images or popular representations. Their worlds, their personalities and their relationships are treated sensitively and perceptively. The result makes extremely interesting reading which would be of particular use to those researchers and academics concerned with the more social-psychological aspects of human-computer interaction. As well as being an excellent example of the right way to do psychological research, the book provides a fascinating insight into a group of individuals for whom interaction with computers is considered preferable to the majority of their interactions with people.

References

- Linn, P, 1985. "Micro-computers in education: living and dead labour". In: T Solomonides and L Levidow (eds.) *Compulsive Technology: Computers as Culture*. London: Free Association Books.
 Turkle, S, 1984. *The second self: Computers and the human spirit*, London: Granada.

AI and expertise: heuristic search, inference, automatic proving by H Farreny, 1988, translated by Jonathan Barchan, Ellis Horwood, pp 260, £39.95.

This is a translation of the original French edition, "Exercices programmes d'intelligence artificielle" (Masson Editeur, Paris, 1987). The two titles plus the beginning of the introduction give an accurate flavour of the book: "In many training courses the participants are asked to complete 'projects', which consist of implementing and testing basic methods, or variants, for solving actual problems. . . . This book is designed to extend a foundation course in: (i) heuristic problem-solving using state spaces, (ii) expert systems generators, (iii) automatic theorem proving. . . . The book is divided into three large chapters corresponding to these themes."

The structure of the book is to review a topic, and then give code for implementing algorithms of increasing complexity. The initial algorithms are given in a simple procedural notation, and the implementations in Lisp (Le-Lisp 15.2). The programs use, in the main, primitives which are common to most Lisp dialects, and have been tested on an Apple Macintosh Plus micro with a megabyte of main memory. However the code and usage sessions presented in the book were entered by hand during translation from the French version—which itself does not seem to have been produced electronically from the source code. Nevertheless, this has been done with care; the quality of the code reproduction appears high, and the translation reads very well.

The first chapter reviews the A and A* algorithms and variants; hardly gripping stuff to start with, but leading to solutions to the 8-puzzle and the travelling salesperson problem.

The second chapter starts by developing an EMYCIN-style inference engine using uncertain knowledge which allows questions and revisions of replies during a session. Next a planning-type expert system generator is developed which is nonmonotonic, uses mixing chaining, works depth first according to a tentative regime with control over the depth, and searches for all solutions