Development of the *Review*

This is the last issue of the third volume of *The Knowledge Engineering Review*. The *Review* is not a specialized research journal (of which there are now many) but aims at a broad perspective of knowledge engineering. Volume 4 will build upon the electric style of previous volumes, maintaining the commitments to breadth and depth. However, volume 4 will also include special issues covering important, emerging topics in greater depth.

The journal also aims to provide a number of information services. Over the last few years, for example, an enormous number of new journals have been born (and not a few have died) to service researchers and developers working in and around pure and applied AI. Indeed, a rummage at my local science reference library revealed that there are probably as many as 40 journals that contain material which is likely to be of interest to readers of *The Knowledge Engineering Review*. When one considers journals aimed at communities applying AI in other disciplines (medicine, other engineering subjects etc.), non-English language journals, allied topics like human engineering and cognitive science, the number is probably close to 60. Obviously it is quite impossible for anyone to keep track of a literature with this sort of range.

Our "From the journals..." section, therefore ,is being developed to provide readers with efficient access to this widely spread literature by reprinting up-to-date contents lists of the primary research journals and other periodicals. So far we are routinely reprinting the contents pages of:

AI in Engineering
AI in Medicine
AI Journal
AI Magazine
AI and Society
Applied Artificial Intelligence
Cognitive Science
Computer and Artificial Intelligence
Computational Intelligence
Data and Knowledge Engineering
Decision Support Systems
Expert Systems
Fifth Generation Computer Systems
IEEE Expert
IEEE Transactions on Pattern Analysis and Machine Intelligence
International Journal of Intelligent Systems
International Journal of Man-Machine Studies
International Journal of Pattern Recognition and AI
Journal of Japanese Society for AI
Journal of Logic Programming
Journal of Automated Reasoning
Knowledge Based Systems
Pattern Recognition Letters
Systems Research and Information Science

As more journals are identified (and I would like to hear from you if you know of any we are

missing) and permission to reprint is obtained, we should approach a fairly comprehensive coverage. This service, together with the reviews and bibliographies that authors include in their survey and analysis papers, makes *The Knowledge Engineering Review* a unique source of information for the community.

Turning to the preparation of articles for the *Review* there are several types of paper which we wish to encourage. A number of "model paper plans" are offered below to illustrate the kinds of paper that we would like to see. The specific formats are not mandatory, and authors are encouraged to develop others, but I hope that some of their features and the general emphasis on clear structure will be helpful in the preparation of submissions.

Analysis papers

These papers are expected to be high quality, foundational surveys providing a balanced but critical presentation of the primary concepts in an area. Authors are encouraged to make a personal contribution by their informed assessment of progress in an area, or by a technical or conceptual analysis. If the literature on the topic is substantial then annotated bibliographies of representative and important reference material are highly desirable.

- Introduction and overview
- Summary of primary literature associated with the topic
- Critical assessment of major concepts, important directions in research and/or development etc.
- Discussion of implications for practical engineering
- Bibliography/further reading

Examples in earlier issues

Paul Cohen (USA). "The control of reasoning under uncertainty, a discussion of some programs" vol. 2 no 1.

Phil Slatter (UK). "Cognitive emulation in expert system design" vol. 2 no 1.

Jean-Pierre Laurent (France). "Types of control structures in expert systems" vol. 2 no 2.

S P Stenton (UK). "Dialogue management for cooperative knowledge based systems" vol. 2 no 2.

Patti Maes (Belgium). "Computational reflection" vol. 3 no 1.

Luis Castillo-Hem (UK). "On distributed artificial intelligence" vol. 3 no 1.

Ian M Neale (UK). "First generation expert systems: a review of knowledge acquisition methodologies" vol. 3 no 2.

M Wilson, D Duce and P Simpson (UK). "Knowledge engineering and software engineering" vol. 3 no. 4.

Peter Mott (UK). "Default truth maintenance systems" vol. 3 no 4.

Roy Rada and Ruth Barlow (USA). "Expert systems and hypertext" vol. 3 no 4.

Sara Jones (UK). "Graphical interfaces for knowledge engineering: an overview of selected literature" vol. 3 no 4.

Applications and country surveys

The *Review* will also publish other kinds of survey. These will include critical assessments of the application of knowledge based systems and AI to important application areas (administration, commerce, engineering, law, medicine . . .) and the development of knowledge engineering and applied AI in different countries. These surveys are, however, normally only of interest if important trends or developments are identified, or experiences are drawn out which are of interest to an international audience. Discussion of applications which challenge the state of the art in knowledge engineering, or raise substantive issues for AI, are of particular interest.

- Background—characteristics and constraints of the application area

- Survey of work
- Critical assessment of trends; progress; prospects
- Bibliography/further reading

Examples of area surveys

Con Connell (UK). "The current impact of expert systems on the accounting profession and some reasons for hesitancy in the adoption of such systems" vol. 2 no 3.
Richard Susskind (UK). "Critical note: Artificial intelligence and the law" vol. 2 no 3.
W Gale (USA). "Statistical applications of artificial intelligence and knowledge engineering" vol. 2 no 4.
N S Walker and J Fox (UK). "Knowledge based interpretation of images: a view from biomedicine" vol. 2 no 4.

Examples of country surveys

Alex d'Agapeyeff and CJB Hawkins (UK). "Expert systems in UK business: a critical assessment" vol. 2 no 3.
Fumihiko Mori (Japan). "Expert systems in business, a Japanese experience" vol. 2 no 3.
Jean-Claude Rault (France). "A survey of French developments in knowledge-based systems" vol. 2 no 3.

Case studies

The value of case studies will be judged on the degree to which they draw out general lessons from experience with particular tools, techniques, or applications. The papers should provide enough background on the application domain to permit readers to distinguish general observations from idiosyncratic features of the domain. Loose anecdotal discussion of cases is not normally appropriate; formal evaluations of performance or design features, and systematic analyses of tools and techniques are highly desirable.

- Introduction and overview
- Background to the project
- Project description
- General lessons. Assessment of tools, techniques etc.

Examples

Jean-Pierre Laurent, J Ayel, F Thome, D Ziebelin (France). "Comparative evaluation of three expert system development tools: Kee, Knowledge craft, Art" vol. 1 no 4.
V Robinson, N W Hardy, D P Barnes, C J Price, M H Lee (UK). "Experiences with a knowledge engineering toolkit: an assessment in industrial robotics" vol. 2 no 1.
S D Ward and D Sleeman (UK). "Learning to use the S.1 Knowledge Engineering Tool"; M S Lan, R M Panos, and MS Balban (USA). "Experience using S.1: an expert system for newspaper printing press configuration" vol. 2 no 4.

Commentaries

Observations by practitioners and others on how research and development is being, or should be, transferred into commercial and industrial practice are of particular interest, but any well-informed commentaries which are likely to be of interest to a technical audience will be considered.

Examples

Bernard P Wess Jr (USA). "Commentary on the commercialization of knowledge engineering: enterprise and product development" vol. 2 no 3.
Leland Teschler (USA). "Trends in the marketing of expert system technology" vol. 2 no 3.
S C Laufmann (USA). "A strategy for near-term success using knowledge-based systems" vol. 2 no 3.
Alex d'Agapeyeff (UK). "The nature of expertise and its elicitation for business expert systems" vol. 3 no 2.
Graem Ringwood (UK). "Metalogic machines" vol. 3 no 4.

Critiques/debates

The purpose of these articles is to dissent from received wisdom, debunk fashions, demand recognition for unfashionable concepts etc. Critiques may be colourful but should always be well informed and carefully prepared.

- Precis of principal features of field
- Argued objections
- Discussions of practical implications
- Bibliography

Examples

B Bloomfield (UK). "Capturing expertise by rule induction"; I Bratko and D Michie (Jugoslavia and UK). "Some comments on rule induction"; B Bloomfield (UK). "A reply to Bratko and Michie" vol. 2 no 1.
Richard Susskind (UK), "Critical note: artificial intelligence and the law" vol. no 3.
Alessandro Saffiotti (Italy). "AI views of the treatment of uncertainty" vol. 2, no 2; Responses to "An AI view of the treatment of uncertainty by Alessandro Saffiotti" by *Dominic Clark, Jim Baldwin, Hamid Berenji, Paul Cohen, Didier Dubois, John Fox, John Lemmer, Henri Prade, David Spiegelhalter, Philipe Smets and Lotfi Zadeh* with a reply by *Alessandro Saffiotti*, vol. no 3.
B Chandrasekaran (USA). "Generic tasks as building blocks for knowledge-based systems: the diagnosis and routine design examples", "Comments on the generic task approach" by *Paul E Johnson, Imran A Zualkernan, Jean-Marc David, Yumi Iwasaki, Richard Keller and Ed Feigenbaum*, vol. 3 no 3.

Book reviews

The *Review* tends to publish reviews of books that deal with integrated topics rather than, say, proceedings of research conferences. The typical length of a book review is approximately 1,500–2,000 words, of which approximately half is general background and discussion and half commentary on the book. Contact the editor for a list of books currently available for review.

Other kinds of contribution

The editor welcomes approaches from anyone interested in contributing material on any topic which may be of general interest to the knowledge engineering community, and is happy to comment on proposals or outlines in anticipation of full preparation.