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Description of Research Interests and Current Work Related to
AUTOMATING SOFTWARE DESIGN

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Research Abstract

While I am working in industry in a department dedicated to *software engineering*, major part of my research dealt with various aspects of *artificial intelligence*. As can be seen from the enclosed list of selected and recent publications, my research interests include heuristic search, machine learning, knowledge acquisition and knowledge-based systems. Moreover, I performed applied research in the areas software engineering and human-computer interaction.

Recently, I became more and more interested in combining methods from these areas, for instance we used *hypertext* for improving the process of knowledge acquisition. Moreover, I emphasize the relationship between the fields, for instance the relations between AI frames and objects in object-oriented approaches. I think that there are many issues in common in knowledge acquisition and object-oriented analysis. Generally, the task of building knowledge-based systems appears to me to include many aspects of software engineering.

Partly, we develop conventional as well as knowledge-based software for telecommunications, and partly we work for the European Space Agency. While we did not really get to the point of building domain-specific software design systems yet, I completely agree that domain-specific knowledge plays a major role in developing software. For instance, the functionality of the software for one satellite is typically not so much different from that of the software for the next satellite. I feel that improvements in the general software development process (e.g., object-oriented approaches) will have to be combined with the use of large domain-specific knowledge bases.

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Appendix: Technical Biography

Hermann Kaindl received the Dipl.-Ing. degree in computer science in 1979 and the Doctoral degree in technical science in 1981, both from the Technical University of Vienna in Austria.

Since 1984, he has been a lecturer on artificial intelligence at the Technical University of Vienna, and in 1989, he received the *venia docendi* for "Praktische Informatik", which is comparable to tenure. He is currently with the department of Program and System Engineering, Siemens AG Österreich, where he leads software projects and is in charge of a group of software engineers. His research interests include planning and search, machine learning, knowledge acquisition, knowledge-based systems, as well as certain aspects of software engineering and human-computer interaction.

Dr. Kaindl is a member of the Austrian Society for Artificial Intelligence, the American Association for Artificial Intelligence, and the International Computer Chess Association.