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Legal AI Systems Enter the Marketplace

by Karl Branting, Administrative Office of U.S. Courts

In 1989, at the Second International Conference on AI and Law, Rees Morrison presented a paper explaining why artificial intelligence technology had not yet gained acceptance in the U.S. legal community. The most important barriers identified by Morrison included the reluctance of lawyers to use computers, lack of uniformity of computer platforms, and the practice of time billing, rather than value billing (because there is no economic incentive to speed up tasks that are billed by the hour).

Twelve years later, intelligent legal information systems (ILISs) are still not a common fixture on lawyers' desks. Most lawyers have heard the term "Artificial Intelligence" only in science fiction films, such as "The Matrix", if at all. However, there are growing indications that ILISs will soon become a ubiquitous feature of the legal systems in industrial nations, although they may not be identified as AI systems.

One key to this transformation is the growth of the World Wide Web, which has largely eliminated the first two of Morrison's barriers. It is estimated that 60% of U.S. households now have an Internet connection. The percentage of households with Internet connections in the rest of the industrial world is somewhat lower, but is growing even

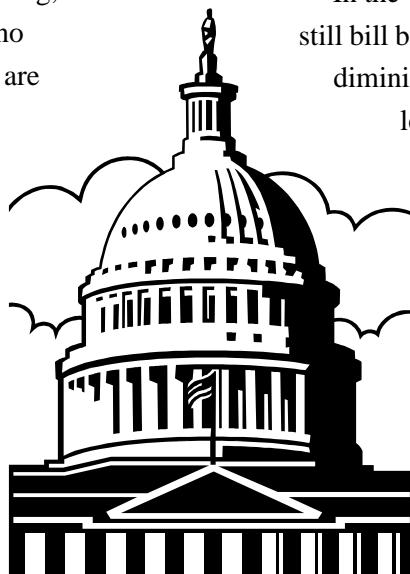
more rapidly than in the U.S. The Web provides a uniform interface that is independent of the particular platform that the user's browser is running on. Moreover, the popularity of web-surfing among children and teenagers has made some familiarity with computers almost unavoidable among even the most technology-averse attorneys.

In the United States, most attorneys in private firms still bill by the hour. However, several factors have diminished time billing's importance as a barrier to legal expert systems. The first is that law firms

are beginning to recognize that ILISs can be both an alternative vehicle for marketing legal expertise and a means of advertising more expensive personal services. Leaders in this trend include London-based Linklaters, with its "Blue Flag" system for derivative transactions, Davis Polk & Wardwell's "Global Collateral Project", Blake Dawson Waldron (Sydney), with its "Virtual Lawyer" (See Alan Cohen, *Legal*

Advice Without the Lawyers, New York Law Journal, Nov. 15, 1999), and Clifford Chance's "NextLaw" (*IT's Magic Formula Pays Dividends*, The Lawyer, May 10, 1999).

A second factor is the consumer movement.



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Consumers who feel that reasonably educated persons should be capable of handling their own routine legal problems provide a growing market for legal advisory systems. Tax preparation software is extremely popular in the U.S., as are estate planning and contract preparation programs. "Quicken Family Lawyer", by Parsons Technology, recently received the highest form of flattery by being held by Texas judge Barefoot Sanders to be illegally practicing law (*Daniel Fisher, Arrest that Software!*, March 8, 1999, *Forbes*, p.94).

A third factor is the growth of the Internet as a tool for delivery of government services. In contrast to private law firms, state, federal, and local governments have a powerful incentive to minimize the time required to meet citizens' immense demand for routine legal information. Amortization of development costs over very large numbers of citizens can make Web-based expert systems extremely cost-effective. For example, the United States Department of Labor has developed a Web-based advisory system called "Elaws" (Employment Laws Assistance for Workers and Small Businesses) (accessible at www.dol.gov/elaws). Elaws consists of sixteen separate "Advisors" whose coverage includes Employment Standards Administration (ESA), Mine Safety and Health Administration (MSHA), Occupational Safety and Health Administration (OSHA), Pension and Welfare Benefits Administration (PWBA), and Veterans' Employment and Training Service (VETS). The U.S. Legal Services Corporation provides a Web-based expert system for a variety of legal services (Stan Kabala, *Poor Residents are Being Offered Free Legal Help*, Orange County Register, August 5, 1999, p. B-6).

Finally, large institutions that require a legal staff for internal legal advice have an incentive to automate this expertise to enhance consistency, preserve institutional knowledge, and decrease personnel costs. For example, liability assessment is a central task for insurance companies, requiring both legal and pragmatic knowledge. Custom-built expert systems for liability assessment have existed for many years (see, e.g., M. Peterson and D. Waterman, *Rule-Based Models of Legal Expertise, Computing Power and Legal Reasoning*, 1985), but recently tools have begun to be marketed to insurance companies for this task. For example, Computer Sciences Corporation has developed "@fault", an expert system for property and casualty liability assessment, and "COLOSSUS", a Web-based expert system for bodily injury claim evaluation.

The judiciary has, unfortunately, thus far been less receptive to ILISs, notwithstanding early experiments in order-drafting software (such as Pethe, Rippey, and Kale's JEDA system) and the "Sentencing Information Systems" used in Australia, Israel, Scotland, and Canada. However, electronic case filing systems

are currently being adopted by courts across the United States, a trend likely to be followed elsewhere. According to Jim McMillan of the National Center for State Courts (www.ncsc.dni.us), more than 50 electronic case-filing systems are deployed or under development in U.S. state courts. The CM/ECF system developed by the Administrative Office of U.S. Courts will be delivered over the next 5 years to every federal bankruptcy, district, and appellate court in the U.S. These electronic case-filing systems will collectively constitute an infrastructure for intelligent judicial information systems. Introduction of electronic case filing is also the driving force behind the Legal XML initiative, (www.legalxml.org), which seeks to develop nonproprietary standards for legal documents.

In addition to the familiar ILIS tasks of legal analysis, prediction, and document drafting, other forms of legal problem solving will become increasingly amenable to automation as AI technologies, such as natural language (NL) processing, mature. For example, the growing effectiveness of speech-understanding systems and dialogue models suggests that conversational legal advisory agents (such as the one depicted in the recent film "The Sixth Day") may move from science fiction to reality sooner than battle-scarred survivors of "AI winter" might imagine. A more modest, but nevertheless imaginative, application of NL techniques is "Deal Proof", a proof-reading system that its developer, Expert Ease (www.expertease.com), claims can help firms increase their retention of junior associates by relieving them of the tedium of endlessly proof-reading document drafts.

As ILISs grow in importance as channels for marketing and distributing legal expertise, demand for attorneys to perform

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Legal Information Systems Workshop (LISA 2000)

by Trevor Bench-Capon, University of Liverpool

The LISA 2000 Workshop on Legal Information took place in September 2000. LISA is a regular part of the International workshop on Database and Expert Systems, held annually in conjunction with the main DEXA conference. This year the elegant venue was the maritime campus of the University of Greenwich, formerly the Royal Naval Hospital, founded by Charles II, and designed by Sir Christopher Wren.

We enjoyed eight presentations across a range of legal information topics. In the first session we heard talks on version management of legislation (Logghe, Herchové and Moens from Leuven); structuring legal knowledge on Data Protection (Kilian and Funkat from Hanover); and an experiment in mining legal data (Bench-Capon, Coenen and Leng from Liverpool). The second session had two presentations on modelling contracts (Tan and Thoen from Erasmus, Rotterdam, and Daskopulu from Kings College, London), and an agent based reconstruction of HYPO (Allen, Bench-Capon and Staniford, also from Liverpool).

The final session reported work on vector representations of legal documents for conceptual retrieval (Schweighofer, Rauber and Merkl from Vienna) and the CLIME project for shipping certification (Winkels from Amsterdam). The Proceedings, in a volume together with the other DEXA workshops are published by IEEE Computer Society.

The small group enabled everyone to participate in the lively discussion, which was continued throughout the workshop and over a convivial lunch in the Admiral Hardy, one of several excellent traditional pubs to be found in Greenwich. All the participants found it an instructive and enjoyable day. Attending the workshop also gave participants the opportunity to attend some of the related presentations in the main conference and in the other workshops, which included an interesting forum on Electronic Government.

LISA 2001 will be held in early September in Munich. For details contact Erich Schweighofer at Erich.Schweighofer@univie.ac.at.

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routine personal legal services will correspondingly erode. Richard Susskind, in his book *The Future of Law* (Oxford University Press, 1996), predicts that this process will lead to the "commoditisation" of legal services, under which low-end legal practice will gradually vanish and be replaced by a new profession of "legal information engineers" who "develop and market ... legal information products and services".

The breezes of economic competition are finally propelling ILISs out of the doldrums that Rees Morrison described. Individuals with expertise in both computer science and law are increasingly in demand. As ILISs become more widely accepted, it is important that the AI & Law community educate consumers and developers about the principles underlying ILISs so that they can distinguish the computational methods suited to given legal tasks from the details of the implementation of those methods and from the advertising hype and idiosyncratic terminology in which vendors habitually cloak their products.

I am happy to report that the number of ILISs currently on the market considerably exceeds the space available to list them, but I would like to conclude with some representative systems:

- Kluwer offers three HTML-based ILISs:
 - WVP, a system for settlement of pension rights after separation by Roland van Liessum, Douwe Kracht and Marnix Weusten, marketed since 1995.

- OVB, a system for bank tax by Rob Hendriks, Douwe Kracht and Marnix Weusten, marketed since 1998.
- WBP, for privacy law, written by Marijn Artz, Douwe Kracht and Marnix Weusten, available in 2001.
- Fred Parnon's Jnana Technologies produces software used by G.E., in its "Patent Advisor", Davis Polk & Wardell, in its "Global Collateral Project", mentioned above, and others (Krysten Crawford, *Companies, People, Ideas*. Forbes, October 2, 2000, p.90).
- Los Angeles-based LRN sells Internet-based programs for sexual harassment and intellectual property (www.lrn.com).
- Portland, Oregon, based Lawgic markets more than 20 expert systems (www.lawgic.com).
- Softlaw Corporation, one of the oldest ILIS vendors, delivers a variety of Web-based services (www.softlaw.com.au).
- BroadVision and Black Pearl are San Francisco-area companies that market ILISs to brokerage houses, telecom and health care firms.
- Xpedian, Inc., markets Web-based financial and estate planning services (www.fl.xpedian.com).
- Ernst & Young's "Ernie" is an online consulting service for small businesses (Alan Cohen, *Legal Advice Without the Lawyers*, New York Law Journal, Nov. 15, 1999).
- LawOnline is a Christchurch, New Zealand, Web-based estate planning system (www.lawonline.co.nz).

Recent Events

BUILDING INTELLIGENT LEGAL DECISION SUPPORT SYSTEMS

The Department of Computer Science and Computer Engineering and Donald Berman Laboratory for Information Technology and Law, Applied Computing Research Institute, La Trobe University, presented a seminar/workshop on "Building Intelligent Legal Decision Support Systems", December 18, 2000.

The speakers were:

- Dr. Andrew Stranieri, La Trobe University, "Tools for placing Intelligent Decision Support Systems on the World Wide Web"
- Dr. Lia Combrink-Kuiters, Erasmus University of Rotterdam, "Jurimetical Research on Judicial Decision-making"
- Mark Gawler, La Trobe University, "Situation Representation for Analogical Modelling"
- Dr. John Yearwood, University of Ballarat, "Knowledge Management for Building Intelligent Legal Decision Support Systems - a shell for representing Toulmin Arguments".

JURIX 2000

The Thirteenth International Conference on Legal Knowledge-Based Systems (JURIX 2000) was held on December 14–15, 2000 at the Logica building, Universiteit Twente, Enschede, the

Netherlands.

The conference featured two invited lectures: Peter Johnson, Softlaw Corporation Australia, who spoke on "Expert systems in public service delivery; an Australian perspective", and Radboud Winkels, Doeke Bosscher, Alexander Boer, Rinke Hoekstra, speaking on "Extended conceptual retrieval".

Scheduled paper presentations included the following:

- Aspasia Daskalopulu, "Model checking contractual protocols"
- Henry Prakken, "An exercise in formalising teleological case-based reasoning"
- Jaap Hage, "Goal-based theory evaluation"
- Trevor Bench-Capon & Giovanni Sartor, "Using values and theories to resolve disagreement in law"
- Alexander Boer, "The Consultancy Game"
- Bram Roth, "New reasoning patterns in analogical case-based reasoning: an informal investigation"
- Jos Lehman & Joost Breuker, "On automatic causal reasoning for legal analysis"
- Lambèr Royakkers, "Action logics for collective agency and norms"

Additional information about JURIX 2000 can be obtained at <http://www.jurix.nl/jurix/jurix2000.html>.

Employment Opportunities

The University of Edinburgh and Glasgow Caledonian University have received 3 years funding for a **Centre for Forensic Statistics and Legal Reasoning**, which will officially start operating in early 2001. A researcher at the postdoctoral level is needed to anchor the Centre's Artificial Intelligence work. The ideal candidate would have experience in programming of knowledge based systems as well as some background in one or more of the Centre's other disciplines, i.e., law, statistics, and forensic science. For additional information, see <http://www.aiai.ed.ac.uk/project/cfslr/> or contact J.Kingston@ed.ac.uk.

The Department of Legal Theory of the Faculty of Law, University of Groningen (Netherlands) has two 4-year research positions for Ph.D. candidates. The researchers will be part of a larger research group working on questions concerning the nature and evolution of new modes of regulation, administration, and jurisdiction in the emerging digital world community.

The two projects, partially funded by the Dutch National Science Foundation, deal respectively with (1) the influence of

the development of the digital world community upon the judicial authority of states and international organisations and (2) self-regulation in the digital world. Summaries of both projects are available at <http://www.rint.rechten.rug.nl/englishpages/index.html>.

Edinbugh University Faculty of Law has a research staff position in law and Artificial Intelligence to work on design and development of a prototype web-based decision support system that will aid lawyers in handling divorce cases. Experience is required in programming Artificial Intelligence systems, object-oriented programming, or writing programs capable of being accessed over the Internet. An understanding of law, and legal authority, would be an advantage. A familiarity with HTML is essential for this job, and experience with one or more of the following technologies would be desirable: programming rule-based "expert systems", Java programming, intranet development, or human-computer interfaces. For addition details, see www.personnel.ed.ac.uk/FURPARTS/Acrel/306789.htm.