RESEARCH PROGRESS IN ARTIFICIAL INTELLIGENCE AND LAW:
AN INTELLECTUAL SURVEY

Prof. Kevin D. Ashley

URL: http://www.lrdc.pitt.edu/ashley/Kevin%20Ashley%27s%20Home%20Page.html
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The course will comprise a weekly three-hour seminar for four weeks.

Week 1. Computational Models of Case-based and Analogical Legal Reasoning: Surveys models developed by researchers from common law and civil law backgrounds culminating in computer programs to generate arguments that a legal rule should apply to a given fact situation (or not) in light of underlying values using defeasible logics and rudimentary argument schema.

Week 2. Argumentation: Addresses how recent advances in argumentation theory, argument schema and critical questions, diagrammatic argument representation, and integrating probabilistic reasoning (e.g., Bayesian belief networks) into computational argument models, impact ways in which researchers computationally model legal argument and the interpretation of legal norms, and design, implement, and evaluate legal expert systems, legal decision-making by automated agents, and intelligent tutoring systems for teaching law students.

Week 3. Representing Legal Concepts and Case Knowledge in Ontologies: Surveys the state of the art in representing legal information and knowledge in a format acceptable for AI and Law applications. Future advances in computational modeling of legal argument and in legal information retrieval depend on developing new techniques for representing legal concepts and case knowledge in ontologies that computer programs can use and manipulate and on improving the specifications ontologies must satisfy.

Week 4. Legal Information Retrieval, Extraction, and Text Processing: Surveys the state of the art in legal information retrieval and information extraction from texts, including from: comparatively well-structured texts such as legal statutes, regulations, and case opinions versus comparatively unstructured texts as in e-Discovery, which involves retrieving, often from enormous databases of digital information, all documents that may be relevant to legal issues in particular litigation contexts.
Introduction to AI & Law: Artificial Intelligence and Law is a subfield of AI research that focuses on computationally modeling legal reasoning for the purpose of building tools to assist in legal practice and pedagogy and of studying legal reasoning in order to contribute to cognitive science and jurisprudence. From the viewpoint of cognitive science and AI, legal reasoning is especially interesting because it falls somewhere between the comparatively well-structured domains of mathematical and scientific reasoning for which AI researchers have developed useful methodologies and the comparatively unstructured common sense domains of ordinary discourse that AI researchers someday hope to model. From a jurisprudential viewpoint, AI and Law offers the promise of embodying theories in a computational form that can be applied systematically to a range of examples; as the theories fail on the margins, the computational models can be improved in an effort to make scientific progress in studying law.

Course Materials: Readings will be distributed electronically via a TWEN course website at lawschool.westlaw.com. In order to access the site, students will need to use a Westlaw password and a course password which the instructor will distribute via email. Readings marked [*] below are required. Unmarked readings are recommended but not required.

Course requirement: Students will be expected to prepare one-page written critiques of certain readings. In order to stimulate classroom discussion and foster understanding of the readings, prior to each weekly seminar students will be asked to prepare and submit short (1 page) critiques in English of the readings indicated below. These one-page critiques should be submitted electronically to the instructor the day before each seminar session. The critiques should comprise four parts:

(a) a brief statement of what the paper is about, and short descriptions of:
(b) the strengths of the approach,
(c) the weaknesses of the approach, and
(d) the relevance of the paper to some project, paper, or topic of interest to the student.

Students should prepare a one-page critique for each required reading [*]. The instructor may assign individual students the responsibility to also prepare a one-page critique for one particular recommended reading per week. The instructor may assign individual students responsibility for being prepared to lead discussions of particular readings at the next class.

Please send an email to monica.palmirani@unibo.it for a better organization of the lectures.
PROGRAMME

12th October 13:00-16:00 Aula 1  
Computational Models of Case-based and Analogical Legal Reasoning  
Readings to be discussed:  

19th October 13:00-16:00 Aula 1  
Argumentation  
Readings to be discussed:  

26th October 13:00-16:00 Aula 1  
Representing Legal Concepts and Case Knowledge in Ontologies  
Readings to be discussed:  

2nd November 13:00-16:00 Aula 1  
Legal Information Retrieval, Extraction, and Text Processing  
Readings to be discussed:  