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# Intelligent Tutoring Systems

6th International Conference, ITS 2002  
Biarritz, France and San Sebastian, Spain, June 2002  
Proceedings



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## Preface

After Montréal (in 1988, 1992, 1996, and 2000) and San Antonio, Texas (in 1998) it was Biarritz, France and San Sebastian, Spain that hosted the sixth International Conference on Intelligent Tutoring Systems in 2002.

Further to the logistic move to Europe, ITS 2002 also evolved in its scientific focus and in its quantitative impact.

We anticipated the shift in focus by extending the Program Committee to scientists not necessarily known in the specific area. We reinforced this choice by inviting presentations of scholars that have excellent records in complementary disciplines. The message was that any domain in Computing and the Human Sciences may contribute to the future of ITS, and conversely, ITS may add value to most traditionally separated domains, in Technologies and the Humanities. The message was also that these exchanges, in order to be fruitful, have to be rigorously placed at the top of current scientific research. We therefore enhanced the links to Programming Languages, Telematics, Knowledge Representation, Software Visualization, Natural Language understanding and generation, Logics.

At the strategic level, we wished to get out of the dangerous dichotomy “theory-application”: instead of forcing industrial partners to listen to our successes or present their products to sell, we preferred to elicit the interests of people, projects, and institutions already seriously committed in technology transfer and large scale e-learning applications by inviting them to participate to special events. These colleagues include scientists, industrialists, as well as decision makers in public institutions. Panels have been reserved to discuss these issues.

We received 167 full papers, representing an increase of 150% in two years. This shows the vitality of the domain worldwide, a phenomenon that deserves attention and reflection. We will elaborate on this later in the preface.

The Program Committee (54 members) selected in a minimal time frame of 3 weeks, 93 of them for the main conference and the proceedings. The revision of papers and the selection of short, poster papers (18) required four more weeks. The files for the book were then presented to the publisher, Springer-Verlag. We were impressed by the competence and performance of the colleagues in the PC. Thank you.

In parallel, there were at least 13 proposed workshops, 6 tutorials, a Young Researcher’s Track, and 6 panels, each managed by one or two specific chairs. There were twice as many complementary events as there were two years ago. We preferred to allow more time for the preparation of these events rather than

force deadlines in order to meet the book's deadline. The rationale for the choice was to serve most of the colleagues, with disparate awareness and interests, more than to serve our ambition to have an even richer single book. All events have been made public and all contributions acknowledged at some stage.

The Program Committee members carefully evaluated the competence and focus of each ITS paper. It was decided that the papers selected should be a testimony of research advancements in the intersection between Artificial Intelligence and Human Learning, neither of the two being ancillary to the other one, but instead in mutual synergy.

There is a consensus concerning human learning, even if some scholars privilege cognitive and others social, contextual, organizational aspects; some focus on tutoring teacher's initiatives, others on learner's initiatives.

The role of "Intelligent Systems", i.e. Artificial Intelligence is more controversial, as may be expected. Traditional AI is currently challenged by an emerging attitude, perhaps stimulated by the Web, of considering the technological advancements that artificially facilitate "intelligence" in humans or groups as part of AI. The subjectivity of the borders between the two views is as evident as one's legitimate adoption of either of the two visions, provided the scientific mission is respected.

The program showed three emerging shifts in interests: the Web and Agents on it, Evaluations, and finally Dialogues, including studies on human motivation and emotions.

Most efforts focus on ITS on the Web. The challenge is not simple, as one is expected to demonstrate not just how the Web may be used for teaching, but how it should evolve in order to facilitate human learning.

Hardly any paper was accepted without requiring the proposed solutions to be seriously evaluated in concrete settings. Toy systems were criticized, real scale, well evaluated experiences were encouraged. Real size research on ITS favors real size research groups. As a result, many papers are signed by multiple authors. Geographically isolated scientists tend more and more to collaborate remotely via Web: many papers resulted from worldwide collaborations, which reinforces positively the vision of a virtual and dynamic scientific community, sometimes emerging even without local support. Statistics by first Author's Country of affiliation reflect less than before the distribution of competence: what may be more interesting to visualize are research networks across countries and institutions.

Dialogues, narrative, motivations, and emotions are central issues for the future of ITS. One sees a major leap in the maturity of the offered research results. Natural language, plan generation, and the pragmatics of interactions

are no longer speculative hypotheses, but concrete modules in advanced ITSs in real size domains.

Finally, here are a few reflections on e-learning. The growth of ITS 2002 is probably a side effect of the e-learning fashion. The latter is probably a side effect of the e-commerce deception. Both e-learning and e-commerce deserve the attention due to important applications on the future Web, but at the same time they induce to a serious reflection on the difference between commercial keywords and real scientific and technical opportunities. At the time of writing, we know of at least five other conferences on e-learning announced for the next months worldwide. Many more exist on each of the subjects of our tracks and sessions.

We believe that our role is to keep a clear distinction between research and commercial implementations. Perhaps we should insist even more on this distinction by linking, coordinating, binding, and certifying scientific conferences in order to avoid the dispersion of interests of our younger colleagues. Certainly, the only way to achieve the mission with respect to future generations of scientists, is to reinforce both collaboration and competition in research. No science without both. No high level conference without rigorous selection and, at the same time, collaboration among peers. Probably, ITS has reached a size such that we may raise the selection level. France and Spain are among the most important wine producers in the world: we all know from history that high quality, highly selected wine requires a non profitable short term investment to ensure long term success and profit. We should probably implement the same rule to reinforce in the long run our recognition of excellence within the different research communities. Collaboration with neighboring disciplines, and newcomers from all over the world, should profitably be coupled with even more selection and competition.

ITS in Biarritz - San Sebastian further fertilized European research, at the same time, enhancing in quantity and quality the fundamental contributions of our colleagues from the USA and Canada. Perhaps it is also time to look even further, to Latin America or Asia for one of the next conferences, thus preparing ourselves to collaborate with new colleagues, and also to compete in a common challenge: better human understanding and learning by means of advanced technologies.

Thanks are due to the other organizers Isabel Fernandez de Castro, General Organization Chair (San Sebastian), Esma Aimeur (Montreal) and Ken Koedinger (Pittsburgh) for the workshops, Gerhard Weber (Freiburg) for the panels, Cyrille Desmoulins (Grenoble) for the posters, Guy Boy (Toulouse) for the tutorials, Jon Elorriaga and Ana Arruarte (San Sebastian) for the Young Researcher's Track, and most especially, Peter King (Winnipeg), who was always present in the program construction process.



## VIII Preface

The conference was sponsored by the Association for Computing Machinery, the International Federation for Information Processing, the Artificial Intelligence in Education Society, the IEEE CS Learning Technology Task Force, the French Direction Générale de l'Armement, The Asociación Española para la Inteligencia Artificial. We are very grateful to both the sponsoring institutions and the corporate sponsors for their generous support.

A conference of this size cannot possibly succeed without the efforts and dedication of a large number of people; we are indebted to them all.

April 2002

Stefano A. Cerri  
Guy Gouardères  
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