

Preface

Welcome to the Workshop on Spatial and Temporal Reasoning at AAAI-07 in Vancouver, British Columbia. This workshop continues in the spirit of a series of such activities over the last fifteen years spanning related communities of researchers that study representing and reasoning about either space or time or both. In addition, the workshop has encouraged a mix of theory and applied work. While a number of central themes recur, a wide variety of topics typify the workshops.

Various basic representational problems in space (direction, location, proximity, geometry, intersection) and in time (coincidence, order, concurrency, overlap, granularity) attract repeated attention due to their fundamental and difficult nature. Likewise, common reasoning problems thread their way through many papers on space (path finding, orientation, relative position) and time (constraint satisfaction, schedule optimisation, precedence). Beyond that, however, the richness of different ontologies, different applications, and different objectives assures that no small collection of solutions will serve to satisfy all needs. The established intractability of many reasoning problems also broadens the search for approximate and partial solutions.

This workshop has a total of six contributions, with two thirds of them in the area of temporal reasoning and one third in the area of spatial reasoning. The first contribution by Bartak and Cepek discusses temporal networks with alternatives, which are used to model alternative and parallel processes. The authors propose a tractable subclass of temporal networks with alternatives that can cover a wide range of real-life processes. Bui et al. look at efficient message passing and propagation of simple temporal constraints. By effectively exploiting the tree-decomposition structure of the constraint graph, they show a way to more efficient algorithms for determining consistency and deriving the minimal network. Dong's contribution revisits the RCC theory and makes nine observations about RCC, leading to a deeper understanding of the theory. In Gagne and Trudel's paper, a formal temporal semantics for Microsoft Project is proposed. The semantics is based on Allen's well-known interval algebra. Mitra makes a proposal for quantitative reasoning with cyclic intervals. It extends Dechter et al's work toward a nonlinear underlying space where a finite real line closes onto itself. The last contribution by Schultz et al. introduces unifying principles that can be used as a guideline for comparing various qualitative spatio-temporal reasoning approaches. It uses case studies to illustrate these principles.

It is the continued wish of the organisers that the contributions to this workshop stimulate cross-fertilization, new applications of known techniques, and new approaches to well-studied applications. Your attendance at the workshop indicates your interest in finding computerised solutions to representation and reasoning problems that deal with space and time, be they geographic or robotic, dealing with transportation or communication, theoretical or applied. We hope you come away with a richer knowledge, sharing our view that space and time may serve as a unifying theme for many areas.

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- *Gerard Ligozat (LIMSI-CNRS, Paris-Sud University, France)*
- *Jochen Renz (Australian National University, Australia)*
- *Rita V. Rodriguez (National Science Foundation, USA)*