Case-Based Reasoning for Computer Games

Workshop at the
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Preface

This workshop is the fourth in a series of successful workshops held at ICCBR. Following workshops in Chicago, USA (ICCBR 2005), Seattle, USA (ICCBR 2009), and Alessandria, Italy (ICCBR 2010) we look to continue the exchange of ideas among case-based reasoning and games researchers. The use of games in case-based reasoning research, both at ICCBR and elsewhere, has been quite popular over the past several years and this workshop looks to highlight recent research trends and directions.

The invited talk for the workshop was given by Hector Muñoz-Avila and entitled "A Case Study for Generating Strategic Game AI: From HTN Planning to Multi-Modal Learning". This talk reports on research done on generating strategic game AI for a particular kind of games called domination games. Domination games are a popular game sub-genre in which teams compete to control a number of locations called domination locations. Domination games are a good testbed for algorithms that integrate planning and execution because actions are non-deterministic, the environment is adversarial, and the state is partially observable. The talk discusses the results of a comparative study of a number of AI techniques to generate strategic Game AI to win domination games.

Six papers were accepted for this workshop. Bakkes, Spronck and van den Herik present an approach to adapt AI in real-time strategy games. Their approach gathers adaptation-related domain knowledge automatically which results in a rapid and reliable adaptation process. Barnachon et al. address issues related to the design and development of intelligent gesture-controlled software. They discuss how CBR can be used to capture and reuse user experiences in order to support human-computer interaction. Floyd and Esfandiari present a demonstration paper that shows how learning by observation agents can be built using a general-purpose framework.

Jiménez-Rodríguez, Jiménez-Díaz and Díaz-Agudo discuss how CBR can be used for opponent matchmaking in multi-player games. They present two match-making approached: skill-based matchmaking and role-based matchmaking. Rubin and Watson present an approach for implicit opponent modelling by dynamically selecting a casebase to use. By selecting a casebase dynamically they are able to exploit weaknesses of opponents and improve performance in Texas Hold'em games. Jaidee, Muñoz-Avila and Aha study case-based leaning techniques in a goal-driven autonomy agent. They use the real-time strategy game Wargus as the testbed for their techniques.

Finally, we would like to thank everyone who contributed to the success of this workshop, especially the authors, the program committee members, and the organizers of the ICCBR 2011 conference.

Michael W. Floyd   August 2011
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