

General Video Game AI with Statistical Forward Planning

SPEAKER Prof Simon LUCAS

Head
School of Electronic Engineering and
Computer Science
Queen Mary University of London
United Kingdom

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VENUE CS Seminar Room, Y6405
6th Floor, Yellow Zone
Yeung Kin Man Academic Building
City University of Hong Kong
83 Tat Chee Avenue
Kowloon Tong

ABSTRACT

Statistical forward planning algorithms provide a simple and general way to provide competent AI controllers for a variety of games. Example algorithms include Monte Carlo Search, Monte Carlo Tree Search, and Rolling Horizon Evolution. They require that the game state can be copied and advanced (stepped forward) rapidly, a condition that is met in many cases. In this talk I will give a brief overview of the algorithms and then demonstrate the ability of rolling horizon evolution to play a variety of video games surprisingly well without the need for any training. Examples range from arcade shooters to real-time strategy games, and the methods also work well for word games. Unlike Deep Reinforcement Learning, these methods adapt almost instantly to changes in the game, so offer a robust form of AI. This paves the way for automated play testing and analysis as a tool to assist games design, as well as potentially providing decision support for complex real-world planning problems.

BIOGRAPHY

Simon Lucas is a Professor of Artificial Intelligence and Head of the School of Electronic Engineering and Computer Science at Queen Mary University of London where he also heads the Game AI Research Group. He is the founding Editor-in-Chief of the IEEE Transactions on Games and he co-founded the IEEE Conference on Computational Intelligence and Games. He is currently the Vice-Principal for Education of the IEEE Computational Intelligence Society. His research involves developing and applying novel artificial intelligence to build better game AI, use AI to design better games, provide deep insights into the nature of intelligence and work towards Artificial General Intelligence.

All are welcome!



In case of questions, please contact Prof TAN, Kay Chen at Tel: 3442 8504, E-mail: kaytan@cityu.edu.hk, or visit the CS Departmental Seminar Web at <http://www.cs.cityu.edu.hk/news/seminars/seminars.html>.

