Review: Machado, Romero and Greenfield (editors): Artificial intelligence and the arts

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The field of Computational Creativity (the modelling, simulation or replication of creativity using computation) has become established over the past few decades. While the field does not exclusively use evolutionary approaches, there is now a significant volume of work within this field of interest to a GP+EM audience. This edited collection [1] is put together by three editors strongly linked to the Evo-MusArt community within the evo* series of bio-inspired computation conferences (see http://www.evostar.org/). As a result, the collection of articles features several approaches of interest to a GP+EM reader, in various areas of artistic endeavour.

Artificial Intelligence and the Arts is divided into five parts. The first four parts focus on AI research-driven approaches to: visual arts, music, 3D graphics and games&story telling. Given the link between the editors and the EvoMusArt conferences, a high percentage of content on visual and sound-based arts is to be expected, though it comes at the expense of areas of the arts such as performing arts or handicraft that could also have been included. The fifth part comes from a slightly different perspective, with reports of three artistic creative systems from creative practitioners who use those systems as part of their artistic work.

Chapters on artificial evolution that will be of particular interest are: Greenfield's review on A-Life in the visual arts (Chapter 1), Kaliakatsos-Papakostas's report on evolutionary approaches to music generation (Chapter 5), and the fascinating insights by Dorin (Chapter 12) and McCormack and Alima (Chapter 14) on their experiences as artists using interactive evolution and ecosystems. *Artificial Intelligence and the Arts* would be a useful addition to university libraries, as well as any GP or evolutionary computation specialist from advanced undergraduate to established researcher, interested in how these techniques could be applied for artistic purposes. More generally, the book is accessible to anyone with a basic computational background, so would be of interest for AI researchers, research students and advanced undergraduates with an interest in how computers could be creative, as

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well as creative practitioners who have enough grasp of computation to be able to appreciate the technical aspects discussed.

I enjoyed reading this book, in particular discovering more about 3D graphics and computational creativity. The contributors include many notable researchers in AI and the Arts, in particular Geraint Wiggins, Colin Johnson, Pablo Gervás, Mike Cook, Antonios Liapis and Jon McCormack, as well as industry insights from Jonathan Eisenmann of Adobe. In fact, all the contributions are well written, readable and well edited, with some general interest in each chapter as well as good reference material for the specific topic covered in that chapter. The book has a decent coverage of visual and sound-based arts as well as games and narrative. It is is well printed, with vibrant illustrations throughout (though it would have been even better if the illustrations could have been in colour rather than grayscale, given the visual focus of many of the chapters).

Each chapter is written in a research paper style rather than a presentation of content and exercises, making it a good companion volume to another volume in the "Computational Synthesis and Creative Systems" book series, a canonical collection of chapters on Computational Creativity (with some overlap in contributors) [2], which comes out of the series of International Conferences on Computational Creativity (ICCC) (see https://computationalcreativity.net/home/conferences/). *Artificial Intelligence and the Arts* is possibly the one of this pair that would be more of interest for GP+EM readers, with more relevant content on evolutionary approaches. (Although ironically, out of the three editors for *Artificial Intelligence and the Arts*, only one has a chapter of their own in this volume, with the other two editors having a chapter in the other collection [2]). Both books are priced at a point which is probably out of reach for most independent researchers without access to a library copy or institutional subscriptions, but sadly this is the norm for academic books of this nature. If you can access a copy, and if you have interest in creative applications of artificial evolution-based approaches to computation, then *Artificial Intelligence and the Arts* is well worth a browse.

References

1. P. Machado, J. Romero, G. (ed.) Greenfield artificial intelligence and the arts: computational creativity, artistic behavior, and tools for creatives. *Computational Synthesis and Creative Systems* (Springer Nature, 2021). https://doi.org/10.1007/978-3-030-59475-6. ISBN 978-3-030-59474-9, pp xiv+381
2. F. Tony Veale, A. Cardoso (ed.) Computational creativity: the philosophy and engineering of autonomously creative systems. *Computational Synthesis and Creative Systems* (Springer, Cham, Switzerland, 2019). https://doi.org/10.1007/978-3-319-43610-4