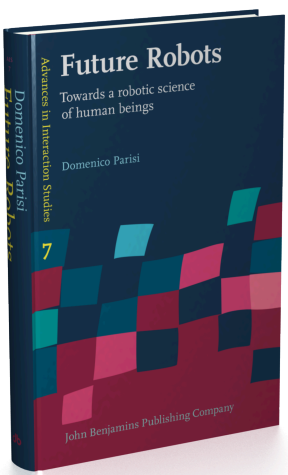
Preface

https://doi.org/10.1075/ais.7.preface



Pages xi–xii of
Future Robots: Towards a robotic science of human beings
Domenico Parisi
[**Advances in Interaction Studies**, 7] 2014. xii, 489 pp.

Preface

Finish what you began, and we shall be born
(Brunella Antomarini, The Maiden Machine)

Human beings are the greatest challenge for science. They are the most complicated of all entities that make up reality. They are embarrassing entities because they seem to be made of both physical matter and something else which is not physical matter. They are difficult to study with the necessary detachment which is required by science because scientists also are human beings. This explains why science knows and understands nature much better than human beings. One might think that one must only wait and, someday, science will understand human beings as it understands all other phenomena of reality. But this may not be true unless the science of human beings changes radically.

The goal of this book is to outline a new science of human beings: a robotic science of human beings. The premise on which this science is based is that we will really understand and explain human beings and their societies only if we succeed in constructing robots that behave like human beings and live in societies which are like human societies. If we succeed in constructing these robots, the theory – or, rather, the blueprint – which has been used to construct the robots captures what underlies human behaviour and human societies and explains them.

But the robots of a robotic science of human beings must be *human*, not *humanoid*, robots. Today's humanoid robots have the external appearance of human beings and do some simple things that human beings do such as grasping an object with their hand or walking on two legs. Human robots must progressively reproduce all that we know about human beings: their body, their brain, their genes, their environment, their evolutionary origins, how they develop during their life, how they acquire new behaviours through learning and imitation, their motivations and emotions, their mental life, their families, their cultures, their economic and political institutions, and how they and their societies have changed and continue to change in the course of time.

These phenomena are traditionally studied by separate scientific disciplines – biology, neuroscience, psychology, anthropology, sociology, economics, political science, history – and this is a problem because scientific disciplines divide reality into separate pieces but reality is not divided into separate pieces. Reality is a large ensemble of different phenomena which are all connected together and, very often, the phenomena studied by one discipline can only be understood and explained by taking into consideration the phenomena studied by another discipline. A robotic science of human beings is a non-disciplinary science of human beings. One and the same robot and one

and the same collection of robots must reproduce all the different human phenomena which today are studied by separate scientific disciplines.

Today's robots are mostly technologies with practical applications and almost all research money goes to robots as practical applications. Our robots do not have practical applications but they are purely scientific tools. The only reason why we want to construct them is that, by constructing them, we can better understand human beings and human societies. They are mirrors through which human beings will be able to see themselves. This means that this book is addressed more to students of human behaviour and human societies than to roboticists – although roboticists may find suggestions on how to construct new robots with practical applications.

But our robots do have one practical application, and this may be the most important application of robots: they can help human beings to better understand the difficult problems they face today and will face in the future and, perhaps, to find solutions to these problems.

This is an ambitious program of research and this is why human robots are future robots. The robots described in the book reproduce in a very simplified way some very limited aspects of human behaviour and human societies. And writing the book has made very clear to its author how many phenomena concerning human beings and human societies still remain to be reproduced by constructing robots. But it is possible to make the first steps towards the realization of the program, and this book describes these first steps.

Acknowledgements

The robots described in this book have been constructed by people who have worked or are still working at the Institute of Cognitive Sciences and Technologies, National Research Council, Rome. Here is a list of these people: Alberto Acerbi, Gianluca Baldassarre, Paolo Bartolomeo, Valerio Biscione, Anna Borghi, Daniele Caligiore, Angelo Cangelosi, Giovanni Sirio Carmantini, Federico Cecconi, Antonio Cerini, Federico Da Rold, Tommasino Ferrauto, Dario Floreano, Simone Giansante, Onofrio Gigliotta, Nicola Lettieri, Henrik Hautop Lund, Filippo Menczer, Orazio Miglino, Marco Mirolli, Francesco Natale, Stefano Nolfi, Fabio Paglieri, Giancarlo Petrosino, Fabio Ruini, Filippo Saglimbeni, Matthew Schlesinger, Massimiliano Ugolini, Alberto Venditti.

I thank Cristina Delogu, Nicola Lettieri, and Marco Mirolli for reading some of the chapters of the book and suggesting how to improve them. I am also very grateful to Cristina Delogu, Emanuela Parisi, and Giuseppe Polegri for their great help in preparing the book's figures.