Philosophy and engineering are usually considered very distant disciplines which do not share a great deal. Until now the relationship between the two has not been studied in a systematic way; this is due to the diversity of their respective cultures and backgrounds, even if the interest in their interactions has been rapidly growing in the last years. This book is one of the first attempts, as far as I am aware, to investigate the connections between philosophy and engineering in a comprehensive way by keeping into account several different perspectives emerging in their interaction. The volume is the outcome of the First Workshop on Philosophy and Engineering (WPE) held in 2007 at the Technical University Delft and collects a wide range of papers by both philosophers and engineers. It is articulated in three parts, each one reflecting the original subject area of the workshop: the first part (chapters 2-10) covers philosophical topics related to engineering, the second one (chapters 11-20) presents ethical considerations on engineering, and the third one (chapters 21-28) considers miscellaneous reflections, mostly by practicing engineers. The first chapter by Ibo van de Poel brilliantly sets the stage of the debate by presenting some conceptual, epistemological, methodological, ontological, and ethical issues in engineering. He starts from the acknowledgment that philosophical investigations on engineering are still rare and philosophy of engineering is as yet non-existent. He continues, then, by putting under debate the fundamental issues for the foundation of a philosophy of engineering partly independent from the current philosophy of technology.

The problem of the foundations for the philosophy of engineering constitutes one of the main themes of the first part of the book. Foundations can be intended either for the philosophy of engineering as a whole new discipline or for the less ambitious and systematized field generically labeled as philosophy and engineering. Moreover, the first part of the book investigates the relations between this new discipline or field and the philosophy of science and the philosophy of technology (see for instance Pieter Vermaas’ paper proposing a philosophy of engineering completely within the philosophy of technology). Moreover, the nature of engineering, technology, science, and their respective interactions are taken into account bringing to a variety of different positions. Amongst these, the acknowledgment of the vital dependence of current science to engineering claimed by Joseph Pitt should be set, as I see it, as a starting point. The whole debate is deeply connected to what van de Poel calls the ‘empirical turn’ in philosophy, in particular in the philosophy of technology, namely the attention philosophers should have on what engineers actually do. This turn, moreover, may have a positive impact also on current philosophy of science. By taking into account engineering issues besides traditional scientific ones, philosophy of science is obliged to shift away from too simplified analyses and move toward more concrete scientific problems. What engineers do have been underestimated by philosophers and in Zachary Pirtle’s paper this neglect from philosophy is shown to be not well founded. He analyses in particular how
models are used in engineering. As the role of models in science is a fast growing topic in contemporary philosophy of science, including engineering models into the reflection of scientific models seems to be a clear example of how to enrich the philosophy of science by the analysis of some engineering issues. This approach can promote not only a much more comprehensive and detailed vision of contemporary science, but also a pluralistic attitude to the philosophy of engineering, that might help in transforming engineering itself, as advocated in Carl Mitcham and Robert Mackey’s contribution.

The second part of the book presents ethical issues of engineering. Some of them concern the debate on professional ethics and its challenges in a global environment. A fil rouge amongst the different contributions may be individuated in the attempt to move from professional ethics (the less neglected part until now in the field of philosophy and engineering) to engineering ethics as a more comprehensive approach, which presents the different scales in which engineering may be questioned ethically. Christelle Didier’s paper, for instance, discusses the current challenges of research in engineering ethics; she stresses the interest in an epistemological approach to the issue that can contribute also to define the outlines of engineering. Thus, this epistemological approach (evident also in Heinz Luegenbiehl’s essay) can be seen as the link between the first and the second part of the book: it is a way to integrate ethical reflections in the framework of the philosophy of engineering and in the debate on its foundations. Other contributions are balanced between attempts to put the basis for ethical regulative principles and reports of concrete experiences of collaboration between ethical experts and engineers (see for instance the paper by Merle de Kreuk et al.).

The third part of the book presents various reflections on philosophy and engineering. These reflections comprehend not only the analysis on how philosophy can contribute to engineering, but also on how engineering can influence traditional philosophy. Two papers seem highly representative to this extent. David Goldberg’s one that starts from a deep analysis of the changes in the world of engineering. He suggests, in particular, three lessons for engineers inviting them to use the conceptual clarification provided by philosophy to overcome the technological crisis of a creative era. Natasha McCarthy’s one that recommends to include engineering knowledge into traditional knowledge. She argues, in particular, how this inclusion can trigger new perspectives on fundamental epistemological questions, such as Cartesian doubt or pessimistic induction. The approaches presented in these two papers represent, in my opinion, two promising starting points to be included in a future philosophy of engineering. This new discipline should take into account both the possible contribution of philosophy for engineers and the consequences of considering the functioning and the results of engineering for shedding new light on traditional philosophical problems. Moreover, Goldberg’s paper has the virtue to consider the role of philosophy in the education of engineers by using very concrete and illuminating examples and, thus, to stress the theme of education in engineering, unfortunately a bit underrepresented in the whole book.

The book reflects the lack of agreement of the contributors on a number of different issues (e.g. the status of the philosophy of engineering and its relationship with other neighboring
disciplines, the definition of engineering, the way philosophers and engineers can interact, the foundational ethical principles for engineering, ...). However, it has the virtue to present in a very complete way the state of the fact of this new field of investigation. Moreover, it includes both philosophers’ and engineers’ reflections that, despite their lacks in the adoption of traditional philosophical criteria, contribute to set up a refreshing scenario. Unfortunately, unless for few significant exceptions, just few papers are devoted to set an agenda for the future and to individuate in a systematic way what topics will be worth investigating.

This overview certainly is not able to give reason of the complexity of such a book. More than listing the different contributions, my idea was to present the main common themes underlying the whole project. I hope to have given the idea of the richness of topics, approaches, issues, and perspectives that can be adopted in reflecting about philosophy and engineering. Moreover, I really hope to have transmitted how this new field of investigation can be an exciting arena for philosophers, engineers, and all who are willing to venture into new and promising intellectual challenges.

VIOLA SCHIAFFONATI
Politecnico di Milano
Piazza Leonardo da Vinci 32, 20133 Milano (Italy)
E-mail: schiaffo@elet.polimi.it