

fresh take on a subject about which very much has already been written. The few personal anecdotes add to the book rather than detract from it. From biology to Gullstrand–Painlevé coordinates to the psychology of dreams, there is something for everyone here. — PHILLIP HELBIG.

### References

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**Machine Learning in Astronomy: Possibilities and Pitfalls (IAU Symposium 368)**, edited by J. McIver, A. Mahabal & C. Fluke (Cambridge University Press), 2025. Pp. 147, 25 × 18 cm. Price £98 (hardbound; ISBN 978 1 009 34519 4).

Similar to a book<sup>1</sup> reviewed<sup>2</sup> a while back in these pages, this volume of proceedings of an IAU symposium is a mostly bad record of what was probably an interesting meeting. Machine learning (ML), a more prosaic name for artificial intelligence, is all the rage now. However, the symposium took place almost four years ago, and as Ofer Lahav points out in his very good contribution, it was used already in the early 1990s for galaxy classification (at least by Lahav himself and his collaborators). His contribution is perhaps the most interesting for those who don't work in the field, giving a good overview, helped by the fact that he has a background in traditional astronomy but is up to date on the latest ML techniques. Other contributions are more specialized, which is to be expected from the proceedings of a specialized meeting. I have no qualms with that and am not really a member of the target readership. However, starting with the too thin paper (the two covers are almost as thick as all the pages) through which the print on the other side is visible, other production mistakes such as bad editing, lack of consistent formatting, mentioning colours in a book in which all figures are in black and white, and too detailed references lead to a book which is distracting to read, which is unfortunate because the material is new and interesting and relevant not just to astronomy; I found many of the contributions interesting, even though they are far from my own work.

The twenty-seven contributions range from two to seventeen pages and cover topics such as exoplanets, spectra, stars, star clusters, galaxies, gravitational waves, galaxy clusters, and cosmology. The longer contributions can provide a good overview, especially those intended as such, such as Lahav's piece on ML in cosmology or 'An Astronomer's Guide to Machine Learning' by Webb & Good; the two panel discussions also offer something more typical of a conference than the normal literature. Most of the shorter contributions (presumably originally posters) are too short to be of much use: too brief for those not familiar with the topic, and unnecessary for those who are. (While many of the items end with a mostly blank page, the fact that many of the short contributions do so leads to much wasted space.) Interesting to me was that the first contribution, on using ML in exoplanet surveys, starts off by mentioning the exquisite precision of modern spectroscopy, "approaching that needed to detect the motion of a Sun-like star due to the gravity of an Earth-mass planet in its habitable

zone”, a topic recently discussed in these pages<sup>3</sup>. There are also articles about ML itself; the contribution by Hložek highlights aspects important for astronomy, and the abstract is a good summary of the aims of the entire book. A common theme is not just using ML but understanding how it works, at least at some level of abstraction, though of course the whole point is that ML very probably works differently from human thinking; in that respect it differs from conventional uses of computers, which essentially carry out human-thinking algorithms much faster and/or with much more data.

Apart from the contents, there is a preface, basic information about the editors and the conference, a list of participants, and an author index. Presumably most of the black-and-white figures are originally in colour; that and the fact that some are too small limits their usefulness. The book is produced *via* L<sup>A</sup>T<sub>E</sub>X and my hope is that the participants are using B<sup>A</sup>X rather than wasting time; I was thus surprised to see a mismatch between an author name in the text and in the reference list.

In such a fast-moving field, many details will be out of date four years after the meeting, but nevertheless proceedings can provide interesting historical snapshots. However, for a book to fulfill that role, it needs to be produced as a book, or at least in a format (such as that of this *Magazine*) which works both on screen and on paper. All of the contributions are available online, with colour figures, active HTML links, and so on, and that is clearly the preferred format for these proceedings.\* Especially considering the price, most buyers of the book will probably be libraries with subscriptions — a common observation in many recent book reviews of such proceedings.

I enjoy going to conferences and well-produced proceedings are both a good record for those who attended and also useful for those who didn't. I think that there are reasons to continue to produce conference proceedings, even if there are fewer such reasons than in the past (*e.g.*, they are no longer practically the only way to get results in advance of publication in the refereed literature — not just the proceedings, but the conferences themselves). Smaller conferences might have to make do with on-line-only proceedings (ideally instead of or in addition to just putting the presentations on the web), which are fine as long as they are permanent. Bigger conferences can justify publishing a book (as well), but if so, it needs to be able to stand on its own. Despite my qualms, I enjoyed reading the book and learned a lot, but am annoyed by the fact that with not much more effort it could have been much better. — PHILLIP HELBIG.

### References

- (1) H. Stacey, A. Sonnenfeld & C. Grillo (eds.), *Strong Gravitational Lensing in the Era of Big Data*, IAU Symposium 381 (Cambridge University Press), 2024.
- (2) P. Helbig, *The Observatory*, **144**, 262, 2024.
- (3) P. Helbig, *The Observatory*, **145**, 116, 2025.

**Dynamical Masses of Local Group Galaxies (IAUS 379)**, edited by Piercarlo Bonifacio *et al.* (Cambridge University Press), 2025. Pp. 398, 25 × 17 cm. Price \$155 (about £116) (hardbound; ISBN 978 1 009 39911 1).

This is the proceedings of the IAU Symposium held in Potsdam in 2023 August. It contains 60 papers, each of reasonable length (no one-page *présis*), divided into five sections. There are no specific review papers, though a few do cover some history of their topic, and there is no conference overview or afterword, which might have been interesting. The topics are at the same time niche (ostensibly covering just one physical property for a small number of galaxies), yet wide ranging, across *Gaia* surveys,  $\Lambda$ CDM (and other) halos, theoretical stellar dynamics, mergers, and chemical signatures, among others. The final section actually

\*However, only three are open access. Checking which three after I had written this review, I found that — surely not coincidentally — they are the three the authors of which I mention by name.