

Guest editorial

The Swedish Artificial Intelligence Society (SAIS) and the Swedish Society on Learning Systems (SSLS) have a long history. As a large country with relatively few inhabitants, Sweden lacks the opportunities for the regular chance encounters, from which scientific dissemination profits so much. Hence the occasion of an informal meeting is organized as a yearly workshop.

The fields of Artificial Intelligence and of Learning Systems have clearly a lot in common. Therefore the initiative was taken in 2003 to have a shared meeting. The intention was of course to reduce costs, as conferences tend to become too expensive for the average (young) researcher. The 1st combined meeting took place in Örebro, right in the middle of Sweden, under the direction of Alessandro Saffiotti.

This special issue of the *Journal of Intelligent & Fuzzy Systems* presents a selection of papers from the 2nd workshop that has been organized by Jacek Malec in Lund (Sweden) from 14 to 16 of April 2004. We thank the program committee for the review and for the selection of papers for this Special Issue around the central theme of Intelligent Control. These persons have been:

Lars Asker (Stockholm)
Christian Balkenius (Lund)
Patrick Doherty (Linköping)
Patrik Eklund (Umeå)
Peter Funk (Västerås)
Andreas Hansson (Skövde)
Henrik Jacobsson (Skövde)
Jan Eric Larsson (Lund)
Jacek Malec (Lund)
Thorsteinn Rögnvaldsson (Halmstad)

Alessandro Saffiotti (Örebro)
Lambert Spaanenburg (Lund)

The first three papers are related to robotics, a field of research with a clear mature and historical status in Sweden. Heintz and Doherty open this section with a discussion of the middleware development for their Unmanned Airborne Vehicle experiments. From a more exploratory perspective comes the overview by Toglioli of his experiments in evolutionary robot control. Then, Cielniak and Duckett tell about recognition and authentication techniques for surveillance by mobile robots.

The next papers are concerned with defects and faults. Grunditz and Spaanenburg show how a hierarchical layering of neural networks can be architected for the visual detection of defects in flat surfaces. The same reliance on physically plausible relations is also apparent in the use by Olsson, Funk and Xiong of case-based reasoning for fault diagnosis through audio metering. In a discourse about early detection to contain fault dissemination, van Veelen and Spaanenburg emphasise the need to differentiate between faults from the process and abnormalities versus the model. Finally, Larsson et al. argue how in a multilevel flow approach the model can always be kept perfect and non-process abnormalities can be efficiently removed.

The Guest Editors,

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Lambert Spaanenburg
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