

## I N T R O D U C T I O N

This conference was an attempt to bring together the various workers in the field of neural networks and related topics so that they could exchange results and appreciate where further useful lines of enquiry might develop. The numbers attending were kept small so that informality could be achieved, and the large amount of questions, comments and general discussion during the sessions showed that this had been very successfully done.

The majority of the following summaries of contributions are, naturally enough, on problems of neural networks. They either involve detailed analyses of the behaviour of small nets of suitably connected elements (Aleksander, Burattini, Martin, Ostojić, Pfaffelhuber), of general analyses of the equations governing arbitrary neural net behaviour (Aiello, Brindley, Taylor, Ventriglia), or of mathematical problems relevant to such analysis (Dal Cin, Zeeman). We were also very lucky to have an experimental paper as opener, from Braitenberg, where some of the perplexing problems arising from neural nets in living organisms were presented.

From the results presented at the conference and from some of the discussions, at times quite heated, it appears that there is an important gap between theoretical neural network analysis, as it is being performed at present, and the arrival at a detailed understanding of the way realistic neural nets perform their multitude of remarkable functions. The analysis of networks of small numbers of elements (less than one thousand) appears now to be in very good shape, as the reports at the conference showed; we still, however, have a long way to go before we can tackle neural nets as complex as our own brains. An essential component to help bridge this gap is a closer discussion between experimentalists and theoreticians. It is to be hoped that future conferences will help ease the situation.

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