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Preface

It is my pleasure and privilege to introduce the papers presented at the 4th International Information Hiding Workshop – IHW 2001. We held the first meeting, which was chaired by Ross Anderson, at the Newton Institute, Cambridge, UK almost five years ago. At that meeting, as Ross stated in his introduction to the first proceedings, we initiated public discussion and critical analysis of five different approaches to information hiding problems: watermarking; anonymous communications; covert channels; steganography; and unobtrusive communications, such as spread-spectrum and meteor scatter radio. Our efforts to bring together, in one meeting, these diverse strands of the information hiding community proved successful, as have our subsequent meetings in Portland, Oregon, USA, under the chairmanship of David Aucsmith, and in Dresden, Germany, which was chaired by Andreas Pfitzmann.

Since our first meeting, the necessity that governments and businesses confront issues related to information hiding has not decreased. Rather, due in large part to the growth of the Internet, such concerns have become ever more urgent. Recently, for example, the news media has exposed the use of embedded information transfers by "undesirable" groups and hidden file structures. On a commercial level, the recent litigation over Napster is unlikely to foil the threats faced by owners of digitally-communicable data to their intellectual property rights. However, as our community recognizes, legitimate privacy concerns must also be respected in order for information hiding techniques to be recognized as both lawful and ethical. These issues make the research presented at IHW 2001 even more pressing and timely.

As in previous years, researchers have approached issues related to the hiding of information from many different angles. For this workshop, we have made an effort to select papers which represent the gamut of interest to information hiders: watermarking and fingerprinting of digital audio, still image, and video; anonymous communications; steganography and subliminal channels; covert channels; database inference channels, etc. This year, several papers analyze problems related to chemistry and to natural language. On a more philosophical level, the papers also represent a mix of conjecture, theory, experimentation, and lessons learned.

We had many quality submissions this year. Unfortunately, due to the pressures of maintaining a balanced program and of providing each speaker with an adequate amount of time for presentation and discussion, we could accept only a small percentage of the submissions. In addition to the presented papers, we also had two discussion sessions. The difficult job of developing the program fell to the program committee which consisted of Ross Anderson (Cambridge University, UK), David Aucsmith (Intel Corp, USA), Jean-Paul Linnartz (Philips Research, The Netherlands), Steven Low (California Institute of Technology, USA), John M^{c}Hugh(SEI/CERT, USA), Fabien Petitcolas (Microsoft Research, UK), Andreas Pfitzmann (Dresden University of Technology, Germany), Jean-Jacques Quisquater (Université Catholique de Louvain, Belgium), Mike Reiter (Bell Labs, Lucent Technologies, USA) and Michael Waidner (IBM Zurich Research Lab, Switzerland), as well as myself. In addition, we are grateful for the assistance we received from Tuomas Aura, Oliver Berthold, LiWu Chang, Sebastian Clauß, Richard Clayton, George Danezis, Jean-François Delaigle, Cédric Fournet, Elke Franz, Teddy Furon, Ruth Heilizer, Markus Jakobsson, Anne-Marie Kermarrec, Darko Kirovski, Herbert Klimant, Stefan Köpsell, Garth Longdon, Henrique Malvar, Kai Rannenberg, and Jianxin Yan.

This year we split the chairpersonship into the positions of "general" chair and "program" chair. John McHugh was the general chair for IHW 2001. Both he and his staff did a fantastic job with the local arrangements, putting together the preproceedings, and the registration process. In keeping with the nautical theme of the River Cam, the Columbia River, and the River Elbe, he arranged a wonderful dinner cruise for the workshop dinner. I thank John for the great job he has done!

If one looks through the past proceedings, in conjunction with IHW 2001, it is exciting to see how the field of information hiding is growing and maturing. We are all looking forward to the new research that will be presented at the next workshop.

Finally, I would like to thank my colleagues on the program committee, the people who assisted the program committee, the workshop participants, and especially every author who submitted a paper to IHW 2001. You all help make the workshop stronger and more interesting!

April 2001 Ira S. Moskowitz

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