

Editorial: “Data and Databases”

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Abstract Databases are the empirical foundation of emotion-oriented computing, and creating them poses problems that are central to the field. There is now a substantial history of work on these problems, and the first chapter in the section reviews it. The two central chapters separate out the two main challenges, collecting appropriate material and developing methods of labelling it that describe its emotional content and the features relevant to recognising or synthesising that kind of emotional content. The last chapter describes a database that was developed within HUMAINE, with the specific aim of illustrating both contemporary understanding of the issues, and the tools available to deal with them. The chapters stand alone as far as possible, but they are not wholly independent, because the issues are deeply interconnected, both to each other and to research that uses databases for recognition or synthesis.

1 Introduction

Work on emotion databases is fundamental to emotion-oriented computing in the most literal sense. Databases are the empirical foundation on which the systems rest. As a result, research on them is massively connected to other areas. It is heavily dependent on theory, and it ought to inform theory in return; it provides input on which both recognition and synthesis depend; it involves both high- and low-level understanding (from showing how an eyebrow moves to showing how emotion may relate to long-term personal history and aspirations); and it is the part of emotion-oriented computing where ethical questions are most immediate.

The sense that the area is so interconnected is relatively recent. The partnerships that are reflected in this section began to form in 2000, at the ISCA workshop on speech and emotion, which was held in Newcastle, County Down. At that stage,

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it was clear that developing suitable databases was a top priority for the emerging field. But it was not clear, even then, that the task was as far ranging as it now seems.

The chapters of Part III aim to give people who come into the field now the benefit of experience since then, and particularly the experience of the partners in the HUMAINE database work package. Above all, they try to give readers the opportunity to see how richly connected the topic is. People should not have to relearn for themselves all the lessons that the writers learned over the years following the Newcastle conference.

2 The Writers and Their Perspectives

The writers of these chapters have all been key players in the HUMAINE network of excellence. As a result, there is a great deal of common ground between them, and the section could be said to represent a HUMAINE perspective on the databases. The perspective involves emphasis on issues like multimodality, authenticity, theoretical presuppositions, and awareness of context. Not all research in the area shares those emphases. It makes perfect sense, for instance, to focus on unimodal data that relate to immediate applications, or the technical quality of recordings. There is no attempt to conceal the existence of other perspectives; on the contrary, the first chapter provides a very extended list of sources so that readers can access what has been done in the whole community, not just within HUMAINE.

The HUMAINE community itself also contains variety. Members have interests in good quality acted data as well as thoroughly naturalistic records; close to application unimodal material as well as recordings that provide sound, vision, and physiological data; both categorical and ‘trace-type’ continuous labelling techniques, and so on. The chapters do not present these as opposing stances, because that is not the way HUMAINE has developed. Instead, they reflect diversity by acknowledging consistently that there are legitimate differences of emphasis within the field. The list of authors on each chapter is long because authorship was designed to ensure that the major positions within HUMAINE were duly represented at every point.

3 Structure

Work on databases can be divided into two broad areas: collecting data and labelling it. Each of the middle two chapters deals with one of those. The first and last deal with issues where both strands come together. The first looks at the past, in terms of principles that inform the whole enterprise, and the history of the field. The last looks at the present and the future, describing the database that has been developed within HUMAINE, which was deliberately designed to display both contemporary understanding of the issues, and the tools available to deal with them.

It is convenient to talk of two strands, but in fact they are thoroughly interconnected. The categories used in labelling are driven by the material that is there to be labelled, and the collection of material is driven by an understanding of the categories that it is relevant to collect. For that reason, insisting that the chapters should avoid all overlap would be highly artificial. The ideal has been to keep the main coverage of any given topic in one place and to treat it briefly in other places where it arises, referring to the main coverage. Sometimes even that is not realistic. There are topics which need to be covered from different angles, and the same is true of key sources (typically innovation in collection has gone hand in hand with innovation in labelling). As a result, some redundancy is necessary. The target has been to avoid unnecessary redundancy.

Conversely, the chapters are written to stand alone rather than forming a totally integrated section. However, it is inevitable that a reader looking at a single chapter will be dissatisfied with the coverage of certain issues in that chapter. The only way to avoid that would be a much higher level of redundancy.

4 Links to Other Sections

Most other chapters have links to this section. However, there are a few where the links are particularly strong. The first part chapter, "Emotion: concepts and definitions", provides the conceptual basis of the labelling systems that are considered here. Chapter "Representing Emotions and Related States in Technological Systems" deals with the issue of description from a specifically engineering standpoint and describes a formal system for representing much of what is set out in these chapters. The chapters on recognition from speech and from sound indicate that moving from signals to concepts depends on the kinds of database that are described here. Chapter "Coordinating the Generation of Signs in Multiple Modalities in an Affective Agent" demonstrates that movement in the other direction, from intention to signals, is equally bound up with databases. All of that reflects the connectedness illustrated by the hexagon diagram in the 'signals to signs' editorial.

5 Further Reading

The chapters provide full lists of references. However, there are key resources for those who want to go quickly to material that provides an overview. There are review papers on databases in two special issues that have been influential in the field (Douglas-Cowie et al., 2003; Scherer et al., 2005). There have since been workshops on databases at LREC whose proceedings are available electronically (Martin et al., 2006; Devillers et al., 2006, 2008). Last but not least, the HUMAINE portal provides a rich set of documents generated by the database work package.

HUMAINE deliverables are available at <http://emotion-research.net/deliverables>

The International Conference on Language Resources and Evaluation (LREC) series home page is available at <http://www.LREC-conf.org/>

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