SSPNet
Social Signal Processing Network
http://www.sspnet.eu/

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[Network of Excellence]

D1.3: SSPNet Yearly Report 3
Publishable Summary

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Contents

1 Publishable Summary

1.1 Project Objectives

The ability to understand and manage social signals of a person we are communicating with is the core of social intelligence. Social intelligence is a facet of human intelligence that has been argued to be indispensable and perhaps the most important for success in life. Although each one of us understands the importance of social signals in everyday life situations, and in spite of recent advances in machine analysis and synthesis of relevant behavioural cues like blinks, smiles, crossed arms, head nods, laughter, etc., the research efforts in machine analysis and synthesis of human social signals like empathy, politeness, and (dis)agreement, are few and tentative. The main reasons for this are the absence of a research agenda and the lack of suitable resources for experimentation.

The mission of the SSPNet is to create a sufficient momentum by integrating an existing large amount of knowledge and available resources in Social Signal Processing (SSP) research domains including cognitive modelling, machine understanding, and synthesizing social behaviour, and so:

- enable the creation of the European and world research agenda in SSP,

- provide efficient and effective access to SSP-relevant tools and data repositories to the research community within and beyond the SSPNet, and

- further develop complementary and multidisciplinary expertise necessary for pushing forward the cutting edge of the research in SSP.

The collective SSPNet research effort will be directed towards integration of existing SSP theories and technologies, and towards identification and exploration of potentials and limitations in SSP. More specifically, the framework of the SSPNet will revolve around two research foci selected for their primacy and significance: Human-Human Interaction (HHI) and Human-Computer Interaction (HCI). A particular scientific challenge that binds the SSPNet partners is the synergetic combination of human-human interaction models, and automated tools for human behaviour sensing and synthesis, within socially-adept multimodal interfaces.

1.2 Work Performed and Main Results

The first two years of the SSPNet have given high visibility to SSP - a domain that, virtually unknown at the beginning of the project, is now often included among the key topics of conferences addressing human-human and human-machine interactions. The query "Social Signal Processing" (submitted to Google) returned only 612 results in summer 2008, but it returns 253,000 hits today. A clear sign of the interest surrounding the subject.

The SSPNet has accompanied and stimulated such an increasing interest through a number of important contributions. The first is the provision of a conceptual framework facilitating shaping SSP in terms of clearly defined research questions. These identify the scope of

the domain, connect SSP-relevant problems across different research fields and enumerate pressing issues in the (interdisciplinary) research on Social Signal Processing.

The second important contribution is the dissemination of a large amount of resources aimed at significantly lowering the barrier to start research in Social Signal Processing. The SSPNet portal (`www.sspnet.eu`) has been a source of knowledge (more than 400 references), data (250 hours of annotated data), tools (20 software packages) and tutorials (more than 150 presentation recordings) for a large number of researchers (around 28000 unique visitors in less than three years).

Last, but not least, the SSPNet has interacted with the scientific community by organizing a large number of workshops, symposia, schools and other scientific gatherings. During the first three years, more than 25 events have been organized and sponsored by the SSPNet that have involved more than 1500 participants all over the world. Such an intense exchange with researchers active in both human and computing sciences has nurtured the scientific production of the project (more than 120 publications). Furthermore, it has provided the ground for starting new collaborations and liaison programs with other research initiatives.

1.3   Expected final results and their potential impact

The ultimate goal of the SSPNet is to provide the scientific community with means and resources allowing any institute, group or researcher to commence research on Social Signal Processing (that requires multiple competences spanning across different disciplines). Thus, the result expected at the end of the SSPNet is a significant lowering, if not the elimination, of the main entry barriers to conducting research on SSP.

- *Lowering the knowledge barrier.* The extensive bibliography available on the SSPNet portal and the tutorials comprising the Virtual Learning Centre provide a comprehensive and up-to-date overview of the SSP state-of-the-art. Furthermore, training and scientific events organized by SSPNet researchers facilitate broad research community to access most recent developments in SSP. Last, but not least, the SSPNet works continuously on elaborating the SSP research agenda, the document highlighting the most important issues and challenges in SSP. The combination of these resources and activities progressively lower the knowledge barrier.

- *Lowering the data barrier.* The large, and constantly growing amount of annotated data available on the SSPNet portal (see previous section) allows any interested researcher to commence research in SSP, and eventually to compare the results of her or his research to those obtained by other researchers contributing to the SSP state-of-the-art. As annotated data is one of the most expensive and time consuming resources to get hold of, provision of benchmarks and annotated databases lowers one of the most important entry barriers to conducting research in the domain.

- *Lowering the tool barrier.* Conducting research in Social Signal Processing requires competences in multiple domains including analysis, synthesis and modeling of voice, facial expressions, gestures, gaze, etc. This makes the topic challenging even for large

research groups, let alone for individual researchers. The main difficulty is having various required tools at disposition, needed to perform research experiments in SSP. The tool repository available on the SSPNet portal (see previous section) aims at lowering this barrier.