

## Preface

The International Conference TSD 2005, the 8th event in the series on Text, Speech, and Dialogue, which originated in 1998, presented state-of-the-art technology and recent achievements in the field of natural language processing. It declared its intent to be an interdisciplinary forum, intertwining research in speech and language processing with its applications in everyday practice. We feel that the mixture of different approaches and applications offered a great opportunity to get acquainted with the current activities in all aspects of language communication and to witness the amazing vitality of researchers from developing countries too. The financial support of the ISCA (International Speech Communication Association) enabled the wide attendance of researchers from all active regions of the world.

This year's conference was partially oriented towards multi-modal human-computer interaction (HCI), which can be seen as the most attractive topic of HCI at the present time. In this way, we are involved in a rich complex of communicative activity, facial expressions, hand gestures, direction of gaze, to name but the most obvious ones. The interpretation of each user utterance depends on the context, prosody, facial expressions (e.g. brows raised, brows and gaze both raised) and gestures. Hearers have to adapt to the speaker (e.g. maintaining the theme of the conversation, smiling etc.). Research into the interaction of these channels is however limited, often focusing on the interaction between a pair of channels. Six significant scientific results achieved in this area in the USA, Japan, Switzerland, Germany, The Netherlands, and the Czech Republic were presented by keynote speakers in special plenary sessions. Further, approx. 35 % of all submitted papers and their presentations were oriented towards multi-modal interaction as well.

This volume contains a collection of all the papers presented at the international conference organized by the Faculty of Applied Sciences of the University of West Bohemia in Pilsen in collaboration with the Faculty of Informatics, Masaryk University in Brno, and held in the world-famous spa town Karlovy Vary (West Bohemia, Czech Republic), September 12–16, 2005. Theoretical and more general contributions were presented in common (plenary) sessions. Problem oriented sessions as well as panel discussions then brought together the specialists in limited problem areas with the aim of exchanging the knowledge and skills resulting from research projects of all kinds. Each of the submitted papers was thoroughly reviewed by three members of the conference reviewing team consisting of more than 40 top specialists in the conference topic areas. A total of 52 accepted papers out of 134 submitted, altogether contributed by 131 authors and co-authors, were selected for presentation at the conference by the program committee and then included in this book.

We would like to gratefully thank the invited speakers and the authors of the papers for their valuable contributions and the ISCA for its financial support. Last but not least, we would like to express our gratitude to the authors for providing their papers on time, to the members of the conference reviewing team and program committee for their careful reviews and paper selection, to the editors for their hard work in preparing this volume, and to the members of the local organizing committee for their enthusiasm in organizing the conference.



# Organization

TSD 2005 was organized by the Faculty of Applied Sciences, University of West Bohemia in Plzeň (Pilsen), in cooperation with the Faculty of Informatics, Masaryk University in Brno, Czech Republic. The conference Web–page is located at URL:

<http://www.kiv.zcu.cz/events/tsd2005/>.

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**Supported by:** International Speech Communication Association (ISCA)

## About Karlovy Vary

Karlovy Vary (Carlsbad) is the largest and best-known spa in the Czech Republic. The town is located not far from the Czech-German border. The distance between Karlovy Vary and Prague, the Czech capital, is 125 km. The altitude of the town is 370 m above sea level and surrounding hills reach up to 644 m. The climate is foothills. The town has 55,000 inhabitants. The architecture and the design of this spa city are closely connected with the function of this city of springs. The city or, more precisely, the city's spa centre, which is the most attractive part from the visitors' point of view, is situated around the meandering Teplá River. The river has been cutting through the hilly landscape full of forests and other vegetation since ancient times.

The oldest records of the settlement of this area go back roughly to the mid-14th century, when the valley around Hot Spring began to be settled on a continuous basis. The written history of the spa city began on 14 August 1370 when Charles IV granted the existing settlement freedoms and rights enjoyed by the nearby royal city of Loket at that time. The privileged status of Karlovy Vary as a spa is shown by a great number of granted privileges confirmed by the Bohemian rulers on an ongoing basis until 1858. The Karlovy Vary spa consisted in particular of baths from the Middle Ages until the late 16th century. Drinking the waters started to gain ground at the suggestion of the doctor Václav Payer who published his first expert book on the Karlovy Vary spa treatment in Leipzig in 1522. In his book, he recommended thermal water drinking besides taking baths. The local doctors Michael Reudenius and Johann Stephan Strobelberger became other enthusiastic promoters of drinking the waters in Karlovy Vary after 1600.

The initial Gothic and Renaissance town, later bearing the imprint of the Baroque style, was seriously damaged by two large fires in 1604 and 1759. The following stage of development, placed in the time period from the beginning to the first half of the 19th century, was overridden by the period of urban and architectural development of the settlement that followed afterwards. The buildings in the Classicist, Empire, Rococo or Biedermaier styles that were outdated or not corresponding to the new spirit of the time were gradually cleared to make space for the developments that already had the parameters required for existence in a by now world-famous spa. This period falls into the last third of the 19th century and continues into the beginning of the 20th century. Buildings, structures, parks, forest trails and other amenities of the urban environment that were coming into existence in this span of time give the face to the modern Karlovy Vary, as well. For this reason, the city spa centre is admired for the unity but not uniformity of its style and architecture. Uniformity is eliminated as the architecture of the city is imbued with the spirit of historicism, eclecticism and Art Nouveau.

Karlovy Vary is a city of colonnades. The best-known colonnade, which every spa visitor is sure to see, is the Hot Spring Colonnade. Over the time of the city's existence, it has changed its appearance several times. The original wooden garden-house over Hot Spring itself and the wooden troughs across the Teplá river distributing the thermal water to separate houses in Tržiště vanished long ago. The fine and delicate colonnade in the Empire style has disappeared as well. Also the imposing colonnade of cast iron

was removed thanks to the second world war. The present colonnade conforms to the time when it was erected. The glass body of the massive colonnade of today, much too robust and not really matching the delicate environment of the spa, is awaiting a general renovation that is to take place shortly. It should convert the colonnade into a temple of health, corresponding to the local atmosphere. The Mill Colonnade should be declared as paramount to all of the others in the city. None other than Josef Zíték, the renowned architect of the Neo-Renaissance style, is its author. It is a structure featuring the main three-bay hall spatially zoned with Corinthian columns bearing the panel ceiling of the main terrace. Roughly in the middle, the hall is widened with a semicircle niche serving as an orchestra pit. The central parts of the colonnade are emphasized by Zíték's pavilion, partly used as a spa café. The terrace over the pavilion and the terrace referred to above are floodlit and used as a spa promenade. Another colonnade, so inseparable from the local colour of Karlovy Vary, is the Market Colonnade. It was constructed in 1883 in place of the former town hall. Immediately after the erection, the colonnade was extended to form a street frontage with small shops designed in a similar style. Both of the structures are linked, constructed of wood, and their architectural impression is clearly that of a spa.

Karlovy Vary can be proud of its extraordinary rich cultural tradition. It is caused in particular by centuries-old visits to the spa city. Every visitor, not only the famous ones, has been an asset and valuable testimonial for Karlovy Vary. That is why the inhabitants of Karlovy Vary have always respected their guests very much and have tried to make their spa stay pleasant in every way possible. The spa society meeting in Karlovy Vary has been gaining in international character since the early 18th century. Besides the aristocracy, the European cultured elite have liked to stay close to the Thermal Spring. Visits of celebrities are a traditional speciality of Karlovy Vary and have had a great impact on and have enriched the city's history. Karlovy Vary has been popular in particular among celebrities from the worlds of music, literature and poetry. Making a list of famous guests of Karlovy Vary according to their popularity at the Thermal Spring, we should place Johann Wolfgang Goethe, a German poet, first, and the Russian czar Peter the Great undoubtedly second. Both of the men went down in the cultural history of Karlovy Vary in a very significant manner. Their stay in the most famous Czech spa is commemorated by dozens of memorial plaques, monuments, books, stories and legends.

Karlovy Vary has not only its spa centre, but also surrounding satellite quarters gradually affiliated to the original historical centre. Similar to other towns in the country, these districts provide housing for most of the population in a more or less successful way. Also, manufacturing facilities and services are concentrated there. Moser glass and Karlovarská Becherovka (38 % alcohol, 10 % sugar, known as "the 13th spring"), are the traditional specialties of Karlovy Vary. The Karlovy Vary International Film Festival annually presents more than 200 category A films from the whole world. The last, the 40th International Film Festival, was organized July 1–9, 2005 and attended by many world-famous film stars.

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