- Hitzeman, J., C. Mellish, and J. Oberlander. 1997. Dynamic generation of museum Web pages: The intelligent labelling explorer. *Journal of Archives and Museum Informatics*, 11:107–115.
- Hitzeman, J., M. Moens, and C. Grover. 1995. Algorithms for analysing the temporal structure of discourse. In *Proceedings* of the EACL, pages 253–260, Dublin, Ireland.
- Hitzeman, J. and M. Poesio. 1998. Long-distance pronominalisation and global focus. In *Proceedings of ACL/ COLING, vol. 1*, pages 550–556, Montreal.
- Mani, I., J. Hitzeman, J. Richer, D. Harris, R. Quimby, and B. Wellner. 2008. Spatialml: Annotation scheme, corpora, and tools.

- In *Proceedings of LREC*, pages 410–415, Marrakesh.
- Mani, I., J. Pustejovsky, and R. Gaizauskas, editors. 2005. *The Language of Time: A Reader*. Oxford University Press, Oxford.
- Poesio, M., R. Stevenson, B. Di Eugenio, and J. M. Hitzeman. 2004. Centering: A parametric theory and its instantiations. *Computational Linguistics*, 30(3):309–363.
- Wellner, B., M. Huyck, S. Mardis, J. Aberdeen, A. Morgan, L. Peshkin, A. Yeh, J. Hitzeman, and L. Hirschman. 2007. Rapidly retargetable approaches to de-identification in medical records. *Journal of the American Medical Informatics* Association, 4(5):564–573.

Hozumi Tanaka

Timothy Baldwin University of Melbourne, Australia

Takenobu Tokunaga Tokyo Institute of Technology, Japan

Jun'ichi Tsujii University of Tokyo, Japan, and University of Manchester, UK

Hozumi Tanaka—or Tanaka-sensei as he was fondly known to his colleagues and students in Japanese—passed away at the age of 67 in the early morning of 27 July 2009. He is survived by his wife Reiko and two sons.

Tanaka-sensei's primary contributions to natural language processing (NLP) are in parsing and semantic analysis. In parsing, he extended the GLR parsing algorithm to incorporate probabilities, multiple connection tables, and simultaneously carry out morphological and syntactic analysis for non-segmenting languages such as Japanese (Tanaka, Tokunaga, and Aizawa 1993; Inui et al. 1997; Shirai et al. 2000). His research on semantic analysis covered a broad spectrum, encompassing word sense disambiguation (Fujii et al. 1998), spoken language understanding for virtual agent systems (Shinyama, Tokunaga, and Tanaka 2000), lexical semantic approaches to query expansion in information retrieval (Mandala, Tokunaga, and Tanaka 2000), and metaphor processing (Iwayama, Tokunaga, and Tanaka 1990). He also carried out research on machine translation (Tanaka, Isahara, and Yasuhara 1983; Tanaka 1999b; Baldwin and Tanaka 2000), computer-assisted language learning (Bilac, Baldwin, and Tanaka 2002), speech recognition (Itou, Hayamizu, and Tanaka 1992; Li, Tanaka, and Tokunaga 1995), dialogue systems (Akiba and Tanaka 1994; Funakoshi, Tokunaga, and Tanaka 2002), and automatic music generation (Suzuki, Tokunaga, and Tanaka 1999). He was the author or editor of a number of popular introductory texts on NLP in Japanese (Tanaka 1989, 1999a).

Tanaka-sensei was the technical lead on the Japanese government-funded CICC Machine Translation Project (1987–1995) between East and South-East Asian languages

(Japanese, Chinese, Thai, Indonesian, and Malay). He also initiated a project on language resources for Asian languages which was funded by the Japanese Ministry of Education, and organized a number of workshops on the topic. The workshop series on Asian Language Resources, which had its seventh iteration at ACL-IJCNLP 2009, grew out of this. These initiatives laid the bedrock for the establishment of the Asian Federation of Natural Language Processing (AFNLP) in 2005.

Tanaka-sensei was a strong advocate of collaborative efforts to create and share language resources for NLP research. This commitment led to him founding GSK (an acronym for *Gengo Shigen Kyokai*, which literally translates as the "Language Resource Association") in 2005, a non-profit organization intended to promote the development and distribution of speech and written language resources in Japan, with the ultimate goal of extending its reach throughout Asia.

Tanaka-sensei was born in Yamanashi, Japan, on 2 October 1941. He graduated from the Tokyo Institute of Technology in 1966 with a Masters degree in Control Engineering, and immediately commenced employment at the Electrotechnical Laboratory (ETL). He remained at ETL until 1983, working on topics including parsing, semantic analysis, machine translation, logic programming, and information extraction. He was actively involved in the planning and execution of the Fifth Generation Computer Systems project, an ambitious attempt by the Japanese government to develop next-generation "knowledge information processing systems" (Moto-oka 1983). Tanaka-sensei received his Ph.D. from the Tokyo Institute of Technology in 1981 (Tanaka 1981), and accepted an Associate Professorship at the Tokyo Institute of Technology in 1983. He became a full professor in 1986, and remained in that position until his retirement from the university in 2005. As is common in Japan, on retirement from the national university system, he took up a professorship at a private university, namely Chukyo University; he remained in this position until March 2009. During his combined time at the Tokyo Institute of Technology and Chukyo University, he supervised more than 200 students (including 27 Ph.D. students). From April 2009 he held a Research Professorship at the Japan Advanced Institute of Science and Technology.

Tanaka-sensei gave generously to the research community, most notably serving as the President of the Japanese Association for Natural Language Processing (1996–1998), President of the Asia–Pacific Association for Machine Translation (1996–1999), President of the International Association for Machine Translation (1997–1999), and President of the Japanese Society for Artificial Intelligence (2003–2005). He was also a member of the International Committee on Computational Linguistics, and a Fellow of the Japanese Association for Natural Language Processing and the Japanese Society for Artificial Intelligence.

In addition to his sharp intellect, Tanaka-sensei is fondly remembered for his caring nature, unflappable good humor, modesty, and all-round likeability. To his students and research associates, he was a true father figure who took a genuine interest in their personal and academic welfare. The "Tanaka Lab" was always a hive of research activity and intellectual stimulation, but at the same time a haven from the pressures of daily life in Tokyo and a safe house for the large numbers of foreign students who studied there. In a characteristically self-deprecating moment when asked what the secret to academic success was, Tanaka-sensei once remarked, "That's easy — you get a job at a good university, which will attract good students, who will do good work; after enough years of that, you'll start kidding yourself that it's you who's doing the work!". He truly was a one-of-a-kind who is sorely missed by his former students, colleagues, and the Japanese NLP community to which he gave so much.

References

- Akiba, Tomoyoshi and Hozumi Tanaka. 1994. A Bayesian approach for user modeling in dialogue systems. In Proceedings of the 15th International Conference on Computational Linguistics (COLING '94), pages 1212–1218, Kyoto.
- Baldwin, Timothy and Hozumi Tanaka. 2000. The effects of word order and segmentation on translation retrieval performance. In *Proceedings of the 18th International Conference on Computational Linguistics (COLING 2000)*, pages 35–41, Saarbrücken.
- Bilac, Slaven, Timothy Baldwin, and Hozumi Tanaka. 2002. Bringing the dictionary to the user: The FOKS system. In *Proceedings of the 19th International Conference on Computational Linguistics (COLING 2002)*, pages 85–91, Taipei.
- Fujii, Atsushi, Kentaro Inui, Takenobu Tokunaga, and Hozumi Tanaka. 1998. Selective sampling for example-based word sense disambiguation. *Computational Linguistics*, 24(4):573–597.
- Funakoshi, Kotaro, Takenobu Tokunaga, and Hozumi Tanaka. 2002. Processing Japanese self-correction in speech dialog systems. In Proceedings of the 19th International Conference on Computational Linguistics (COLING 2002), pages 287–293, Taipei.
- Inui, Kentaro, Virach Sornlertlamvanich, Hozumi Tanaka, and Takenobu Tokunaga. 1997. A new formalization of probabilistic GLR parsing. In *Proceedings of the 5th International Workshop on Parsing Technology* (IWPT 1997), pages 123–134, Boston, MA.
- Itou, Katunobu, Satoru Hayamizu, and Hozumi Tanaka. 1992. Continuous speech recognition by context-dependent phonetic HMM and an efficient algorithm for finding *N*-best sentence hypotheses. In *Proceedings of the 1992 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP-92)*, pages 21–24, San Francisco, CA.
- Iwayama, Makoto, Takenobu Tokunaga, and Hozumi Tanaka. 1990. A method of calculating the measure of salience in understanding metaphors. In *Proceedings of the Eighth National Conference on Artificial Intelligence (AAAI'90)*, pages 298–303, Boston, MA.
- Mandala, Rila, Takenobu Tokunaga, and Hozumi Tanaka. 2000. Query expansion using heterogeneous thesauri. *Information Processing and Management*, 36(3):361–378.
- Moto-oka, Tohru. 1983. Fifth Generation Computer Systems. North-Holland

- Publishing Company, Amsterdam, Netherlands.
- Shinyama, Yusuke, Takenobu Tokunaga, and Hozumi Tanaka. 2000. "Kairai"—software robots understanding natural language. In *Proceedings of the Third International Workshop on Human—Computer Conversation*, pages 158–163, Bellagio.
- Shirai, Kiyoaki, Masahiro Ueki, Taiichi Hashimoto, Takenobu Tokunaga, and Hozumi Tanaka. 2000. Shizen gengo kaiseki no tame no MSLR pāza tsūrukitto [An MSLR toolkit for natural language analysis]. *Journal of Natural Language Processing*, 7(5):93–112. [In Japanese.]
- Suzuki, Taizan, Takenobu Tokunaga, and Hozumi Tanaka. 1999. A case-based approach to the generation of musical expression. In *Proceedings of the 16th International Joint Conference on Artificial Intelligence (IJCAI'99)*, pages 642–648, Stockholm.
- Tanaka, Hozumi. 1981. Keisanki ni-yoru Shizen Gengo no Imi Shori ni-kansuru Kenkyu [A Study on Automatic Processing of Natural Language Semantics]. Ph.D. thesis, Tokyo Institute of Technology.
- Tanaka, Hozumi. 1989. Shizen Gengo Kaiseki no Kiso [The Fundamentals of Natural Language Analysis]. Sango-Tosho, Tokyo.
- Tanaka, Hozumi, editor. 1999a. Shizen Gengo Shori Kiso to Ōyō [Natural Language Processing Foundations and Applications —]. Information Processing Society of Japan, Tokyo.
- Tanaka, Hozumi. 1999b. What should we do next for MT system development? In *Proceedings of the Machine Translation Summit VII*, pages 3–8, Singapore.
- Tanaka, Hozumi, Hitoshi Isahara, and Hideki Yasuhara. 1983. An English–Japanese machine translation system using active dictionary. *New Generation Computing*, 1(2):179–185.
- Tanaka, Hozumi, Hui Li, and Takenobu Tokunaga. 1995. A new technology of GLR parsing and its applications to speech and natural language processing. In *Proceedings of the Symposium on Natural Language Processing (SNLP'95)*, Bangkok.
- Tanaka, Hozumi, Takenobu Tokunaga, and Michio Aizawa. 1993. Integration of morphological and syntactic analysis based on LR parsing algorithm. In *Proceedings of the International Workshop on Parsing Technologies* 1993 (IWPT'93), pages 101–109, Tilburg, Netherlands, and Durbuy, Belgium.