

# Masashi Unoki

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## University Address

[Visiting, Sept. 2000 -- August 2001]

Centre for the Neural Basis of Hearing  
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School of Information Science,  
Japan Advanced Institute of Science and Technology  
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## Degree

Ph.D., Information Science, JAIST, Ishikawa, Japan, 1999.  
M.A., Information Science, JAIST, Ishikawa, Japan, 1997.  
Univ. diploma., Department of Information and Computer Science, Polytechnic  
University, Sagamihara, Japan, 1995.

## Professional Experience

Teaching Assistant, School of Information Science, JAIST, 1996 - 1997.

- Fundamental Mathematics for Information Science
- Linear Systems

Lecturer, Department of Business Management, Ishikawa Polytechnic College, 1995 - 1998

- Operating Research, Linear Programming
- System Optimization
- Computer Programming

Intern Student, Dept. 1, ATR Human Information Processing Research Laboratories, 1997.

## Awards, Fellowships, and Grants

2000 Sato Prize, award for outstanding papers, The Acoustical Society of Japan  
Toshio Irino and Masashi Unoki, "An Analysis/Synthesis Auditory Filterbank Based on an IIR Implementation of the Gammachirp"

Research Fellow of the Japan Society for the Promotion of Science (DC2), April 1998 - March 1999 (School of Information Science, JAIST)

Research Fellow of the Japan Society for the Promotion of Science (PD), April 1999 - March 2000 (School of Information Science, JAIST)

Research Fellow of the Japan Society for the Promotion of Science (PD), April 2000 - March 2003 (School of Information Science, JAIST)

Travel Grant, The Telecommunications Advancement Foundation.

Traveled to Rhodes, Greece to present at the 5th International Conference on Eurospeech'97, Sept., 1997.

Travel Grant, Fundation for C&C Promotion.

Traveled to Sydney, Australia to present at the 5th International Conference on Spoken Language Processing (ICSLP), Dec. 1998.

Travel Grant, The JAIST Foundation.

Traveled to Il Ciocco, Italy to present at NATO Advanced Study Institute Computational Hearing, July 1998.

Financial Aid Scholarship (Japanese Government: the Ministry of Education, Science, Sports and Culture), April 1995 - March 1998.

Grant in Aid for science research from Ministry of Education (Research Fellowships of the Japan Society for the Promotion of Science for Young Scientificsts), April 1998 - March 2000.

Grant in Aid for science research from Ministry of Education (Research Fellowships of the Japan Society for the Promotion of Science for Young Scientificsts), April 2000 - March 2003.

Grants for JSPS Fellows, The British Council, Sept 2000- August 20001.

## Publications

### Book chapters:

1. Unoki, M. and Akagi, M. "A Computational Model of Co-Modulation Masking Release," In *NATO Science Series: Computational model of Auditory Function*. Edited by S. Greenberg and M. Slaney, IOS Press, Amsterdam, ISBN 90 5199 457 5, 1999.
2. Irino, T. and Unoki, M. "A Time-Varying, Analysis / Synthesis auditory filterbank based on An IIR Gammachirp filter," In *NATO Science Series: Computational model of Auditory Function*. Edited by S. Greenberg and M. Slaney, IOS Press, Amsterdam, ISBN 90 5199 457 5, 1999.

## Articles:

1. Nishiyama, K. and Unoki, M. "An Artificial Neural Network for Searching the Maximum Values," *The Transaction of the Institute of Electronics, Information and Communication Engineers D-II*, vol. J77-D-II, no. 7, pp. 1382-1385, July 1994.
2. Unoki, M. and Akagi, M. "A Method of Signal Extraction from Noise-added Signal," *The Transaction of the Institute of Electronics, Information and Communication Engineers A*, vol. J80-A, no. 3, pp. 444-453, March 1997
3. Unoki, M. and Akagi, M. "A Method of Signal Extraction from Noisy Signal based on Auditory Scene Analysis," In *Proc. of IJCAI-97 Workshop on CASA'97*, pp. 93-102, Nagoya, Japan, August 1997.
4. Unoki, M. and Akagi, M. "A Method of Signal Extraction from Noisy Signal," In *Proc. of Eurospeech'97*, vol. 5, pp. 2587-2590, Rhodes, Greece, Sept. 1997.
5. Irino, T. and Unoki, M. "A Time-Varying, Analysis /Synthesis Auditory Filterbank using the gammachirp," In *Proc. of ICASSP'98*, vol. VI, pp. 3653-3656, Seattle, Washington, USA, May 1998.
6. Irino, T. and Unoki, M. "A Time-Varying, Analysis / Synthesis auditory filterbank based on An IIR Gammachirp filter," In *Proc. of NATO ASI on Computational Hearing*, pp. 205-210, July 1998.
7. Unoki, M. and Akagi, M. "A Computational Model of Co-Modulation Masking Release," In *Proc. of NATO ASI on Computational Hearing*, pp. 129-134, July 1998.
8. Unoki, M. and Akagi, M. "Signal Extraction from Noisy Signal based on Auditory Scene Analysis," In *Proc. of ICSLP'98*, vol. 4, pp. 1515-1518, Sydney, Australia, Dec. 1998.
9. Unoki, M. and Akagi, M. "A Method of Signal Extraction from Noisy Signal based on Auditory Scene Analysis," *Speech Communication*, vol. 27, no. 3, pp. 261-279, April 1999.
10. Unoki, M. and Akagi, M. "Segregation of vowel in background noise using the model of segregating two acoustic sources based on auditory scene analysis," In *Proc. of IJCAI-99 Workshop on CASA'99*, pp. 51-60, Stockholm, Sweden, August 1999.
11. Unoki, M. and Akagi, M. "Segregation of vowel in background noise using the model of segregating two acoustic sources based on auditory scene analysis," In *Proc. of Eurospeech'99*, vol. 6, pp. 2575-2578, Budapest, Hungary, Sept. 1999.
12. Irino, T. and Unoki, M. "An Analysis/Synthesis Auditory Filterbank Based on an IIR Implementation of the Gammachirp," *The Journal of the Acoustical Society of Japan (E)*, vol. 20, no. 6, pp. 397--406, Nov. 1999.
13. Unoki, M. and Akagi, M. "A Method of Extracting the Harmonic Tone from Noisy Signal Based on Auditory Scene Analysis," *The Transaction of the Institute of Electronics, Information and Communication Engineers A*, vol. J82-A, no. 10, pp. 1-11, Oct. 1999.

## Presentations and Seminars

1. Nishiyama, K. and Unoki, M. "A Generalization of Compression Algorithm of Redundant Neurons in Extended Hopfield Associative Memory Model," Technical Report of IEICE, NC93-27, Kikai-Shinko-Kaikan, July 1993.
2. Nishiyama, K. and Unoki, M. "Extended Hopfield Associative Memory Model," Technical Report of IEICE, NC93-94, Univ. of Tamagawa, July 1993.
3. Nishiyama, K. and Unoki, M. "A Possibility of Reducing the Redundant Neurons added into Hopfield Associative Memory Model so that All the Memorized Patterns are Orthogonal," Technical Report of IEICE, NC93-95, Tamagawa Univ. July 1993.
4. Unoki, M. and Akagi, M. "An Extraction Method of the Signal from Noise-added Signals," Trans. Tech. Com. Psycho. Physio. Acoust. H-95-79, NTT Basic Research Labs., Sept., 1995.
5. Unoki, M. and Akagi, M. "An Extraction method of the Signal from Noise-added Signals," The 1996 Spring meeting of the Acoustic Society of Japan, 3-3-13, The University of Electro-Communications, March 1996.
6. Unoki, M. and Akagi, M. "A Study of Computational model of Co-modulation Masking Release," Technical Report of IEICE, SP96-37, Ishikawa High-Tech center, July 1996.
7. Unoki, M. and Akagi, M. "An Extraction Method of the AM complex tone from Noise-added AM complex tone," Technical Report of IEICE, SP96-123, NHK Sci. & Res. Labs., March 1996.
8. Unoki, M. and Akagi, M. "An Extraction Method of the AM Complex tone form Bandpassed-Noise added AM Complex tone," The 1996 Spring meeting of the Acoustical Society of Japan, 2-8-7, Doushisha Univ. March 1996.
9. Unoki, M. and Akagi, M. "A Study on Refined Computational Model of Co-modulation Masking Release," The 1996 Spring meeting of the Acoustical Society of Japan, 3-8-2, Doushisha Univ. March 1996.
10. Unoki, M. and Irino, T. "A method for controlling the asymmetric parameters in gammachirp filterbank," The 1997 Spring meeting of the Acoustical Society of Japan, 1-8-3, Keio Univ. March 1997.
11. Unoki, M. and Akagi, M. "An Extraction of the Complex tone considering temporal variation of the fundamental frequency," The 1997 Spring meeting of the Acoustical Society of Japan, Keio Univ. 2-8-16, March 1997.
12. Unoki, M. and Akagi, M. "An Extraction Method of the complex tone considering temporal variation of the fundamental frequency," Technical Report of IEICE, SP97-129, Tokyo Univ. March 1997.
13. Irino, T. and Unoki, M. "An efficient Implementation of the gammachirp filter and filterbank," Trans. Tech. Com. Psycho. Physio. Acoust. H-97-69, NTT Basic Research Labs., Oct. 1997.
14. Unoki, M. and Akagi, M. "A Computational Model of Co-modulation Masking Release," Transactions of the Technical Committee on Psychological and Physiological Acoustics, H-98-51, Hokkaido Univ. June 1998.

15. Unoki, M. and Akagi, M. "An Extraction of vowel in noise background based on Auditory Scene Analysis," The 1998 A Fall meeting of the Acoustical Society of Japan, Univ. of Yamagata, Sept. 1998.
16. Unoki, M. and Akagi, M. "A model of the problem of segregating two acoustic sources based on auditory scene analysis," Technical Report of IEICE, SP98-158, Tokyo Univ. March 1999.
17. Unoki, M. and Akagi, M. "A model of the problem of segregating two acoustic sources based on auditory scene analysis," The 1999 Spring meeting of the Acoustical Society of Japan, 1-2-6, Meiji Univ. March 1999.
18. Unoki, M. and Akagi, M. "Vowel segregation in background noise using the model of segregating two acoustic sources," In Proc. of AI Challenge, pp. 7--14, AOYAMA Gakuin Univ., Nov. 1999
19. Unoki, M. and Irino, T. "Improvement of an IIR asymmetric-compensation gammachirp filter," ATR Technical Report TR-H-293, April 2000.
20. Unoki, M. and Irino, T. "Improvement of an IIR asymmetric-compensation gammachirp filter," Trans. Tech. Com. Psycho. Physio. Acoust. H-2000-42, Univ. of Hokkaido, June 2000.
21. Ishimoto, Y., Unoki, M., and Akagi, M. "A fundamental frequency estimation method for noisy speech based on periodicity and harmonicity," Technical Report of IEICE, Wakayama Univ., Sept. 2000.
22. Ishimoto, Y., Unoki, M., and Akagi, M. "A Fundamental frequency estimation method for noisy speech based on periodicity and harmonicity," The 1998 A Fall meeting of the Acoustical Society of Japan, Iwate-Pref. College, Sept. 2000.
23. Irino, T., Unoki, M., and Patterson, R.D., "A physiologically motivated gammachirp filterbank," British Society of Audiology Short Papers Meeting on Experimental Studies of Hearing and Deafness, Keele University, Staffordshire, Sept. 2000.
24. Akagi, M., Mizumachi, M., Ishimoto, Y., and Unoki, M. "Speech Enhancement and Segregation based on Human Auditory Mechanisms," Oct., 2000.

## Language

Japanese: native.

English: moderate.

## Memberships

The European Speech Communication Association

The Acoustical Society of Japan

The Institute of Electronics, Information and Communication Engineers

Research Institute of Signal Processing

## Personal Information

Born: June 26, 1969. Akita, Japan

Nationality: Japanese

Marital status: Married