

Akisato Kimura

Pattern Recognition Research Group, Media Information Laboratory,
NTT Communication Science Laboratories, NTT Corporation

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1. Education

B.E., Electrical and Electronics Engineering, March 1998

Tokyo Institute of Technology, Tokyo, Japan

Title of thesis: "On low-voltage companding filters with CMOS FET"

Under the supervision of Professor Nobuo Fujii

M.E., Electrical and Electronics Engineering, March 2000

Tokyo Institute of Technology, Tokyo, Japan

Title of thesis: "Weak variable-length Slepian-Wolf coding with linked encoders for mixed sources"

Under the supervision of Professor Tomohiko Uyematsu

D.E., Communications and Integrated Systems, September 2007

Tokyo Institute of Technology, Tokyo, Japan

Title of thesis: "Coding theorems for correlated sources with cooperative encoding"

Under the supervision of Professor Tomohiko Uyematsu

2. Profession

[April 1997 to Mar 1998]

B.E. candidate, Electrical and Electronics Engineering, Tokyo Institute of Technology, Japan.

Conducted research on theories and designs of analog electronic circuits.

[April 1998 to Mar 2000]

M.E. candidate, Electrical and Electronics Engineering, Tokyo Institute of Technology, Japan.

Conducted research on Shannon theory and multiterminal source coding.

[April 2000 to present]

Researcher (Apr 2000 – Mar 2008), Research Scientist (Apr 2008 --), Media Information

Laboratory, NTT Communication Science Laboratories, NTT Corporation, Japan

Conducting research on multimedia information retrieval, perceptual signal processing. See also the “Research Interest” below.

[April 2005 to September 2007]

D.E. candidate, Communications and Integrated Systems, Tokyo Institute of Technology, Japan.

Conducted research on Shannon theory and multiterminal source coding.

3. Memberships

Senior Member, the Institute of Electrical and Electronics Engineers (IEEE)

Member, the International Association for Pattern Recognition (IAPR)

Member, the Institute of Electronics, Information and Communication Engineers (IEICE)

Member, Society of Information Theory and its Applications (SITA)

Member, Forum of Image Informatics in Japan (FIIJ)

4. Research Interests

Pattern recognition & computer vision

- ✓ Quick identification and registration of partial images and videos
- ✓ Object discovery and recognition in natural scenes
- ✓ Interest point detection and its applications
- ✓ Unsupervised/interactive image segmentation

Perceptual signal processing

- ✓ Computational models of human visual attention and their applications
- ✓ Human auditory attention models

Multimedia information retrieval

- ✓ Ultrafast retrieval for music and video archives
- ✓ Image/video annotation retrieval
- ✓ Multidimensional indexing

Statistical signal processing

- ✓ Kalman filters, state space models
- ✓ Markov random fields (static or dynamic)
- ✓ Applications of statistical learning techniques

Information Theory

- ✓ Shannon theory
- ✓ Multiterminal source coding, network source coding

- ✓ Performance analysis of information retrieval via Shannon theory

5. Selected Publications

- **Akisato Kimura**, Kunio Kashino, Takayuki Kurozumi and Hiroshi Murase:
"A quick search method for multimedia signals using global pruning",
IEICE Transactions on Information and Systems,
Vol.J85-D-II, No.10, pp.1552-1562, October 2002. (In Japanese)
Translated into English, Systems and Computers in Japan,
Vol.34, No.13, pp.47-58, November 2003.
(22 citations for this article, 9 citations for the related conference paper)
- **Akisato Kimura** and Tomohiko Uyematsu:
"Weak variable-length Slepian-Wolf coding with linked encoders for mixed sources,"
IEEE Transactions on Information Theory,
Vol.50, No.1, pp.183-193, Jan. 2004.
(5 citations)
- **Akisato Kimura**, Takahito Kawanishi and Kunio Kashino:
"SPIRE: A partial image identification method based on sparse indexing",
IEICE Transactions on Information and Systems,
Vol.J88-D-II, No.8, pp.1712-1719, August 2005 (In Japanese).
(1 citation for this article, 8 citations for the related conference papers)
- **Akisato Kimura**, Tomohiko Uyematsu and Shigeaki Kuzuoka:
"Universal coding for correlated source with complementary delivery,"
IEICE Transactions on Fundamentals,
Vol.E90-A, No.9, pp.1840-1847, September 2007.
- Derek Pang, **Akisato Kimura**, Tatsuto Takeuchi, Junji Yamato and Kunio Kashino:
"A stochastic model of selective visual attention with a dynamic Bayesian network,"
Proceedings of International Conference on Multimedia and Expo (ICME2008),
pp. 1073—1076, Hannover, Germany, June 2008.
- **Akisato Kimura**, Tomohiko Uyematsu, Shigeaki Kuzuoka and Shun Watanabe:
"Universal source coding over generalized complementary delivery networks,"
to appear, IEEE Transactions on Information Theory.
- And others...

In total:

- ✓ 7 journal papers
- ✓ 18 peer-reviewed conference papers (2 under review)
- ✓ 40 other conference papers and/or talks without review (4 to be presented)
- ✓ 4 registered patents (1 for overseas, 3 for domestic),

17 disclosed patent applications (3 for overseas, 14 for domestic)

✓ 4 other technical notes

Other publications are available at <http://www.brl.ntt.co.jp/people/akisato/publications.html>

6. Research Grants

- Grant-in-Aid for Young Scientists (B), 20760255,
The Ministry of Education, Culture, Sports, Science and Technology in Japan,
April 2008 to March 2010.

7. Awards

- Derek Pang, Akisato Kimura, Tatsuto Takeuchi, Junji Yamato, Kunio Kashino
“A stochastic model of selective visual attention with a dynamic Bayesian network,”
Best Interactive Session Award, Meeting on Image Recognition and Understanding
(MIRU2008), Karuizawa, Nagano, Japan July 2008.

8. Other Activities

- Organizing committee member
 1. MIRAISON 2006, NTT Communication Science Laboratories Inter-exchange Meeting (2006)
- Academic activities
 1. Planning manager, Society of Information Theory and its Applications SITA (2009-2010)
- Extraordinary reviewer
 1. IEICE Transactions on Fundamentals (2003 - 2008)
 2. IEICE Transactions on Information and Systems (2003 - 2009)
 3. IEICE Transactions on Communications (2008)
 4. IPSJ Transactions on Databases (2005)
 5. IEEE Transactions on Multimedia (2006)
 6. IEEE Transactions on Acoustic, Speech and Language Processing (2008)
 7. IEEE Transactions on Information Theory (2008 - 2009)

(In total, reviewed 19 papers)
- Referee of conference papers
 1. International Conference on Acoustics, Speech and Signal Processing, ICASSP

(2004)

2. International Symposium on Information Theory and its Application, ISITA
(2008)

3. International Conference on Multimedia Modeling, MMM (2009)

➤ Session Chair

1. Symposium on Information Theory and its Applications, SITA (2005)

2. IPSJ Annual Meeting (2008)