Shih-Fu Chang

EDUCATION

- Ph.D., Electrical Engineering & Computer Sciences, U.C. Berkeley, 1993
- M.S., Electrical Engineering & Computer Sciences, U.C. Berkeley, 1991

PROFESSIONAL EXPERIENCES

- 2007-date, Chairman; 2002-date, Professor; 1997-2002, Associate Professor; 1993-97, Assistant Professor, Columbia University.
- 1999 to date: Director, Digital Video and Multimedia Lab, Columbia University.
- 1999 to 2004: Director, ADVENT University-Industry Research Consortium, Columbia University (25+ industry sponsors)
- 1999-2000: Co-Founder & Chief Scientist, MediaQuest Technologies Inc.
- Visiting Faculty Researcher, IBM T.J. Watson, 2005-6; Microsoft Research Asia 2006.
- Advisor/Consultant at Eastman Kodak, PictureTel, AT&T Research, iBeam, 1999-2004.

DISTINCTIONS AND HONORS

- *IEEE Kiyo Tomiyasu Technical Field Award*, for pioneer contributions to image classification & search, 2009.
- *IEEE Fellow*, for contributions to digital video and multimedia technologies, 2004.
- *Young Investigator Award*, Office of Naval Research, 1998-2001.
- *Faculty Early Career Development (CAREER)* Award, NSF, 1995-1998.
- *Recognition of Service Award,* Association for Computing Machinery (ACM), 2000.
- *Faculty Development Award*, IBM, 1995-1998.
- *Best Paper Award*, IEEE Circuits and Systems Society, Transactions on Circuits and Systems for Video Technology, 2000.
- *Best Paper Award*, SPIE Intern. Symposium on Visual Comm. Image Processing, 1995.
- *Best Student Paper Awards*, ACM Multimedia Conference, 1993, 2002, and 2005.
- *Best Student Paper Award*, IEEE International Conference on Image Processing, 2004.

PROFESSIONAL ACTIVITIES

- Editor in Chief, IEEE Signal Processing Magazine, 2006-8.
- Recent Editorial Board Activities: Journal of Statistical Analysis and Data Mining, John Wiley & Sons, 2006-date; ACM Transactions on Multimedia Computing, Communications, and Applications, 2004-2005; IEEE Transactions on Multimedia, 1999-2003.
- General Co-Chair, ACM International Multimedia Conference, 2000, 2010.
- Conference Co-Chair, IEEE Conference on Multimedia and Exhibition, 2004.
- Recent Keynote Speeches:
  IEEE International Conference on Multimedia and Exhibition (ICME), July 2009;
  ACM Multimedia Information Retrieval Conference, Vancouver, Oct. 2008;
  Intern. Workshop on Image Analysis for MM Interactive Services (WIAMIS), June 2007;
  IEEE Multimedia Signal Processing Workshop (MMSP), Shanghai, China, Oct 2005;
  International Conference on Image and Video Retrieval (CIVR), Dublin City, July 2004.

FIVE RELATED PUBLICATIONS

1. W. Liu and S.-F. Chang, "Robust Multi-Class Transductive Learning with Graphs," In *Proc. Computer Vision and Pattern Recognition (CVPR),* Miami, 2009.

2. J. Wang, Y. G. Jiang, and S. F. Chang. "Label Diagnosis through Self Tuning for Web Image Search," In *Proc. Computer Vision and Pattern Recognition (CVPR),* Miami, 2009.
3. J. Wang, T. Jebara, S.-F. Chang, "Graph Transduction via Alternating Minimization," In *International Conference on Machine Learning (ICML)*, Finland, 2008.
4. D. Xu, S.-F. Chang, "Visual Event Recognition in News Video using Kernel Methods with Multi-Level Temporal Alignment**,"** In *Computer Vision and Pattern Recognition (CVPR)*, Minneapolis, 2007.
5. A. Yanagawa, S.-F. Chang, L. Kennedy, W. Hsu, "Columbia University's Baseline Detectors for 374 LSCOM Semantic Visual Concepts," *Research Report Columbia University*, March 2007. (download: www.ee.columbia.edu/dvmm/columbia374)

FIVE OTHER PUBLICATIONS

1. J. R. Smith and S.-F. Chang, "Searching for Images and Videos on the World-Wide Web," IEEE Multimedia Magazine, Vol. 4, No. 3, pp. 12-20, 1997.
2. Y. Rui, T. Huang, and S.-F. Chang, "Image Retrieval: Current Techniques, Open Issues, and Promising Directions," Journal of Visual Communication and Image Representation, 1999.
3. T.-T. Ng, S.-F. Chang, C.-Y. Lin, Q. Sun, "Passive-blind Image Forensics," Book Chapter In Multimedia Security Technologies for Digital Rights*,* Elsvier*,* 2006.
4. S.-F. Chang, J. R. Smith, M. Beigi, and A. Benitez, "Visual Information Retrieval from Large Distributed On-Line Repositories," Communications of ACM, Special Issue on Visual Information Management, Vol. 40 No. 12, pp. 63-71, Dec. 1997.
5. S.-F. Chang, A. Vetro, "Video Adaptation: Concepts, Technologies, and Open Issues**,"** Special Issue on Advances in Video Coding and Delivery, Proceedings of IEEE, 2005.

SYNERGISTIC ACTIVITIES:

Chang and his group pioneer the development of theories, algorithms, and systems for visual information analytics, content-based multimedia retrieval, machine learning, as well as media forensics. His work has been influential in shaping the emerging fields of visual analytics and retrieval. In the 90's, he and his students developed several of the first image/video search engines, such as VisualSEEk, VideoQ, and WebSEEk. Other significant developments include semantic concept-based video search, a large publicly available classifier library for visual categorization (e.g., Columbia374), international standards for multimedia indexing (e.g., MPEG-7), and large-scale multimedia ontologies (e.g., LSCOM). In addition, Chang has led several cross-disciplinary initiatives, including Columbia's ADVENT university-industry research consortium (with more than 25 sponsors), a DAVIC Video on Demand international interoperability test, and a medical video library under Columbia's Health Care Digital Library.

PH.D. STUDENTS AND COLLABORATORS:

Past PhD: *John R. Smith* (IBM), *Ching -Ying Lin* (IBM Research), *Di Zhong* (Citibank), *Seungyup Paek (*Jubilant*), Paul Bocheck, Gustavo De Los Reyes* (AT&T), *Hari Sundaram* (Arizona State U.), *Alex Jaimes* (Telefonica), *Ana Benitez* (Goggle), *Shahram Ebadollahi* (IBM Research), *Lexing Xie* (IBM Research), *Yong Wang* (Dolby Labs), *Dongqing Zhang* (Thomson), *Winston Hsu* (National Taiwan University), *Tian-Tsong Ng* (Singapore I2R), *Lyndon Kennedy* (Yahoo! Research).

Collaborators: *D. Messerschmitt* (thesis advisor) ; *A. Loui*, Kodak; *M. Naphade*, *P. Natsev*, IBM; *A. Hauptmann*, CMU, *A. Reibman,* AT&T; *J. Curtis*, Cyc; *B. Shahraray*, AT&T; A. Hooge, Kitware.