

Ching-Yung Lin

Dept. of Electrical Engineering
1312 Mudd Bldg., 500 West 120th Street
Columbia University
New York, NY 10027

Tel: 212-854-4393 (O), 212-316-1810 (H)
Fax: 212-932-9421
Email: cylin@ctr.columbia.edu
<http://www.ee.columbia.edu/~cylin>

Objective

An R & D or faculty position in multimedia application. May concentrate on the area of multimedia security whose goal is to assure the trustworthy multimedia data, to secure transmission privacy in multimedia system, and to protect multimedia data from illegal distribution.

Education

Ph.D.	E.E.	Columbia University in the City of New York	GPA 4.0/4.0	2000
M.S.	E.E.	National Taiwan University, Taipei, Taiwan	GPA 92.2/100	1993
B.S.	E.E.	National Taiwan University, Taipei, Taiwan		1991

Professional Experience

- Research Assistant* Columbia University, New York, NY 8/96 to present
- Research: watermark/digital signature techniques for authentication, copyright protection, and information hiding.
 - Designed and implemented the first successful semi-fragile content authentication system, which distinguishes JPEG/MPEG compression from malicious manipulation.
 - Developed an interactive multimedia system for Columbia Video Network, used in the image/video processing course.
 - Integrated MPEG-2 video/audio feature analysis for video indexing.
- Summer Intern* NEC Research Institute, Princeton, NJ 5/99-8/99
- Designed and implemented the first public/oblivious watermarking methods to survive print-and-scan process.
 - Modeled DVD/VHS signal transcoding process and digital image print-and-scan process.
- R & D Engineer* EeRise Co., Taipei, Taiwan 12/95-7/96
- Designed a computer vision system for detecting subpixel object position to correct monitor misconvergence.
- Instructor* National Taiwan University, Taipei, Taiwan 8/95-7/96
- Instructed a graduate-level course: computer communication network lab.
- Wireless Communication Officer* Air Force, Chiayi Airport, Taiwan 7/93-5/95
- Maintained and repaired mobile systems (base stations and handsets) and ground-to-air wireless equipments.
- Research Assistant* National Taiwan University, Taipei, Taiwan 8/91-6/93
- Research: image/video coding, shape recognition, 2D filter design, and wavelets.
 - Projects: detection and segmentation of infrared targets; performance analysis of phase array radar detectors.

Academic Honors

- Invited Talks:
 - "Overview of Multimedia Authentication Techniques," Multimedia and Networking Conf., Newark, NJ, Nov. 1999.
 - "Public Watermarking Surviving General Scaling and Cropping: an application for print-and-scan process," Multimedia and Security Workshop at ACM Multimedia 99, Orlando, FL, Oct. 1999.
 - "Multimedia Authentication," NEC Research Institute, Princeton, NJ, May 1999.
 - "Generating Robust Digital Signature for Image/Video Authentication," Multimedia and Security Workshop at ACM Multimedia 98, Bristol, UK, Sep. 1998.
- Invited Panel Member: "New Visions on Multimedia Security," Multimedia and Security Workshop at ACM Multimedia 99, Orlando, FL, Oct. 1999.
- Lung-Teng Thesis Award, Sep. 1993. (Best EECS Thesis Award in Taiwan)
- Outstanding Paper Award, Conf. on CVGIP, Taiwan, Aug. 1993.

Skills and Others

- Experienced programmer in C/C++ on both UNIX and Windows platforms.
- Familiar with *Java*, *JavaScript*, *Perl*, *HTML*, *CGI*, *VB/VBA*, *JPEG*, *MPEG-1/2/4/7*, *H.26+*, *Matlab*.
- Languages: *English*, *Chinese*, *Japanese*.
- Hobbies: *photography*, *astrophotography*, *hiking*, *traveling*, *playing guitar*, *jogging*, and *swimming*.
- IEEE (Member '96, Student Member '98), ACM Student Member '98, SPIE Student Member '99.
- Three U.S. patents pending.

Publications

Journal Papers

1. Ching-Yung Lin and Shih-Fu Chang, "**Semi-Fragile Watermarking for Authenticating JPEG Visual Content**," *SPIE Security and Watermarking of Multimedia Contents II*, EI '00, San Jose, CA, Jan. 2000; also in preparation to submit to *IEEE Trans. on Image Processing*.
2. Ching-Yung Lin, Min Wu, Jeffery Bloom, Matt Miller, Ingemar Cox, and Yui Man Lui, "**Rotation, Scale and Translation Resilient Public Watermarking for Images**," *SPIE Security and Watermarking of Multimedia Contents II*, EI '00, San Jose, CA, Jan. 2000; also submitted to *IEEE Trans. on Image Processing*, Jan. 2000.
3. Ching-Yung Lin and Shih-Fu Chang, "**A Robust Image Authentication Method Distinguishing JPEG Compression from Malicious Manipulation**," *CU/CTR Technical Report 486-97-19*, Dec. 1997; also accepted to publish on *IEEE Trans. on Circuits and Systems for Video Technology*, June 1999.
4. Soo-Chang Pei, Chien-Cheng Tseng and Ching-Yung Lin, "**A Parallel Decoding Algorithm for IFS Codes without Transient Behavior**," *IEEE Trans. on Image Processing*, pp.411-415, March 1996.
5. Soo-Chang Pei, Chien-Cheng Tseng and Ching-Yung Lin, "**Wavelet Transform and Scale Space Filtering of Fractal Image**," *IEEE Trans. on Image Processing*, pp.682-687, May 1995.

Conference Papers and Technical Reports

1. Ching-Yung Lin and Shih-Fu Chang, "**Distortion Modeling and Invariant Extraction for Digital Image Print-and-Scan Process**," *Intl. Symp. on Multimedia Information Processing (ISMIP)*, Taipei, Taiwan, Dec. 1999.
2. Ching-Yung Lin, "**Public Watermarking Surviving General Scaling and Cropping: An Application for Print-and-Scan Process**," *Multimedia and Security Workshop at ACM Multimedia 99*, Orlando, FL, Oct. 1999.
3. Ching-Yung Lin and Shih-Fu Chang, "**Authentication of Zero-Tree Wavelet Encoded Images**," *ADVENT Project Report*, Columbia University, May 1999.
4. Ching-Yung Lin and Shih-Fu Chang, "**Issues and Solutions for Authenticating MPEG Video**," *SPIE Security and Watermarking of Multimedia Contents*, EI '99, San Jose, CA, Jan. 1999.
5. Ching-Yung Lin and Shih-Fu Chang, "**Generating Robust Digital Signature for Image/Video Authentication**," *Multimedia and Security Workshop at ACM Multimedia 98*, Bristol, UK, Sept. 1998.
6. Ching-Yung Lin and Shih-Fu Chang, "**A Watermark-Based Robust Image Authentication Method Using Wavelets**," *ADVENT Project Report*, Columbia University, April 1998.
7. Ching-Yung Lin and Shih-Fu Chang, "**A Robust Image Authentication Method Surviving JPEG Lossy Compression**," *SPIE Storage and Retrieval of Image/Video Database*, EI '98, San Jose, Jan. 1998.
8. Ching-Yung Lin and Shih-Fu Chang, "**An Image Authenticator Surviving DCT-based Variable Quantization Table Compressions**," *CU/CTR Technical Report 490-98-24*, Nov. 1997.
9. Soo-Chang Pei, Chien-Cheng Tseng and Ching-Yung Lin, "**A Parallel Decoding Algorithm for IFS Codes without Transient Behavior**," *IEEE Workshop on Intelligent Signal Processing and Comm. System*, Sendai, Japan, Oct. 1993.
10. Soo-Chang Pei, Chien-Cheng Tseng and Ching-Yung Lin, "**Fractal-based Image Compression Algorithm**," *HD-media Technology and Application Workshop*, pp.8.1-8.6, Taipei, Taiwan, Oct. 1993.
11. Soo-Chang Pei, Chien-Cheng Tseng and Ching-Yung Lin, "**Wavelet Transform and Scale Space Filtering of Fractal Image**," *Conf. on Computer Vision Graphics and Image Processing*, pp.50-57, Nantou, Taiwan, Aug. 1993.
12. Ching-Yung Lin, "**Fractal and Its Applications to Image/Video Compression**," Master Thesis, *National Taiwan University*, 238 pages, June 1993. (Lung-Teng Thesis Award)
13. Soo-Chang Pei and Ching-Yung Lin, "**Detection and Segmentation of Infrared Targets**," *Project report CS 82-0210-D009-007*, Chung Shan Institute of Technology, R.O.C. Department of Defense, 82 pages, June 1993.
14. Soo-Chang Pei, Ching-Yung Lin and Chien-Cheng Tseng, "**Two-dimensional LMS Adaptive Linear Phase Filters**," *IEEE International Symposium on Circuits and Systems*, pp.311-314, Chicago, May 1993.
15. Soo-Chang Pei and Ching-Yung Lin, "**2D Invariant Shape Recognition Using High Order Spectrum**," *Conf. on Computer Vision Graphics and Image Processing*, pp.258-264, Nantou, Taiwan, Aug. 1992.

References

Prof. Shih-Fu Chang (<i>Ph.D. Thesis Advisor</i>) Dept. of EE, Columbia Univ. New York, NY 10027 212-854-8694 sfchang@ctr.columbia.edu	Dr. Ingemar J. Cox NEC Research Institute 4 Independence Way, Princeton, NJ 08540 609-951-2722 ingemar@research.nj.nec.com
Prof. Dimitris Anastassiou Dept. of EE, Columbia Univ. New York, NY 10027 212-854-3113 anastas@ctr.columbia.edu	Prof. Soo-Chang Pei (<i>Master Thesis Advisor</i>) Dept. of EE, National Taiwan Univ. Taipei 106, Taiwan +886-2-2363-5251 ext. 321 pei@cc.ee.ntu.edu.tw