

# ANNE MARGOT F. AARON

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## EDUCATION

### Stanford University, Stanford, CA, USA

**Ph.D. Electrical Engineering Candidate**, 4/2001-present (expected completion:12/2006)

Thesis: Wyner-Ziv Coding of Video, Advisor: Bernd Girod

**M.S. Electrical Engineering**, 4/2001

Concentration: Wireless Communications

### Ateneo de Manila University, Quezon City, Philippines

**B.S. Computer Engineering**, 3/1999

Thesis: Automated LIDAR System for Boundary Layer and Pollution Studies

**B.S. Physics**, 3/1998

## AWARDS AND HONORS

### Stanford University

C.V. Starr Southeast Asian Fellowship, 2003-2005

Stanford Graduate Fellowship, 1999-2002

### Ateneo de Manila University

University Valedictorian, 1998

Magna Cum Laude, 1998

Physics Department Award, 1998

Computer Engineering Department Award, 1999

Dean's Award for Service and Excellence, 1998

### Others

AT&T Asia-Pacific Leadership Award, 1999

Bank of the Philippines Science Award, 1999

Jose Rizal Model Student of the Philippines, 1998

Philippine Delegate, Hitachi Young Leader's Initiative, 1996

Department of Science and Technology Scholarship, 1994-1998

## TECHNICAL WORK EXPERIENCE

### Stanford University, Stanford, CA, USA

**Research Assistant**, Image, Video and Multimedia Systems Laboratory, 6/2001-present

- Designed and implemented codes for distributed compression using turbo codes
- Developed a low-complexity video encoding scheme based on distributed source coding principles
- Applied distributed source coding techniques to error-resiliency for video broadcasting, compression for large camera arrays and coding for random access of light fields

### Cisco Systems, San Jose, CA, USA

**Summer Intern**, Wireless Engineering Group, 6/2000-9/2000

- Studied and compared methods for implementing digital filters
- Conducted design and verification of digital filters for a fixed wireless system

### Manila Observatory, Quezon City, Philippines

**Student Researcher**, 6/1997-3/1999

- Designed and implemented the hardware interface for a computer-controlled automated LIDAR system
- Created a LabVIEW program for the software control of the LIDAR system

### Philippine Senate, Manila, Philippines

**Technical Staff Intern**, Committee on Environment, 3/1997-6/1997

- Conducted technical research for the senators on pending environmental legislature
- Consulted with various sectors regarding impact and urgency of bills

## PROFESSIONAL SERVICE

### Reviewer for Journals

IEEE Transactions on Multimedia, IEEE Transactions on Image Processing, IEEE Transactions on Communications, IEEE Signal Processing Letters, IEEE Communication Letters, EURASIP Signal Processing, Signal Processing Magazine

### Reviewer for Conferences

Data Compression Conference, IEEE Wireless Communications & Networking Conference, International Symposium on Circuits and Systems, Packet Video Workshop

### Stanford Women in Electrical Engineering

Board Member, 2004-2005

### IEEE Stanford Student Chapter

Financial Officer, 1999-2000

## COMMUNITY SERVICE AND LEADERSHIP EXPERIENCE

### Catholic Community at Stanford, Stanford, CA, USA

**Community Service Coordinator**, 9/2000-8/2001

- Organized community service programs for the Catholic community at Stanford

### National Movement for Free Elections, Quezon City, Philippines

**Operations Manager**, 3/1998-6/1998

- Developed an operations plan for the tabulation of results for the 1998 Philippine Presidential Elections
- Supervised the operations of 4,000 volunteers during the tabulation of results

### Student Council, Ateneo de Manila University, Quezon City, Philippines

**External Vice-President**, 6/1997-3/1998

- Acted as the student council liaison with other universities and institutions
- Organized projects for student political awareness

**Chairperson**, Department of Environment, 6/1996-3/1997

- Established a campus-wide recycling program
- Organized environmental awareness projects for students

## TECHNICAL SKILLS

**Programming** – C/C++, Matlab, LabView, HTML, Assembly, VHDL

**Platform** – Windows, Linux/Unix

**Video Standards** – H.263+, H.264/AVC

## COURSEWORK

Image and Video Compression, Image and Video Processing, Multimedia Communications, Information Theory, Digital Signal Processing, Wireless Communications, Digital Communications, Optical Fiber Communications, Computer Architecture, Computer Networks, Cryptography, Digital Design, Analog Circuit Design, Programming Languages, Operating Systems

## PUBLICATIONS

### Journal Papers

D. Varodayan, A. Aaron and B. Girod, "Rate-adaptive codes for distributed source coding," *EURASIP Signal Processing Journal, Special Issue on Distributed Source Coding*. Invited Paper. To appear.

D. Rebollo-Monedero, S. Rane, A. Aaron and B. Girod, "High-rate quantization and transform coding with side information at the decoder," *EURASIP Signal Processing Journal, Special Issue on Distributed Source Coding*. Invited Paper. To appear.

B. Girod, A. Aaron, S. Rane and D. Rebollo-Monedero, "Distributed video coding," *Proceedings of the IEEE, Special Issue on Video Coding and Delivery*, vol. 93, no. 1, pp. 71-83, Jan. 2005. Invited paper.

## Conference Publications

- A. Aaron, D. Varodayan and B. Girod, "Wyner-Ziv residual coding of video," *Proc. Picture Coding Symposium, PCS-2006*, Beijing, China, April 2006.
- D. Varodayan, A. Aaron and B. Girod, "Exploiting spatial correlation in pixel-domain distributed image compression," *Proc. Picture Coding Symposium, PCS-2006*, Beijing, China, April 2006.
- D. Varodayan, A. Aaron and B. Girod, "Rate-adaptive distributed source coding using Low-Density Parity-Check codes," *Proc. Asilomar Conference on Signals and Systems*, Pacific Grove, CA, Nov. 2005.
- S. Rane, A. Aaron and B. Girod, "Error-resilient video transmission using multiple embedded Wyner-Ziv descriptions", *Proc. IEEE International Conference on Image Processing, ICIP-2005*, Genova, Italy, Sept. 2005.
- A. Aaron and B. Girod, "Wyner-Ziv video coding with low-encoder complexity," *Proc. Picture Coding Symposium, PCS-2004*, San Francisco, CA, Dec. 2004. Invited paper.
- S. Rane, A. Aaron and B. Girod, "Systematic lossy forward error protection for error-resilient digital video broadcasting - A Wyner-Ziv coding approach," *Proc. IEEE International Conference on Image Processing, ICIP-2004*, Singapore, Oct. 2004.
- A. Aaron, S. Rane and B. Girod, "Wyner-Ziv video coding with hash-based motion compensation at the receiver", *Proc. IEEE International Conference on Image Processing, ICIP-2004*, Singapore, Oct. 2004.
- A. Aaron, P. Ramanathan and B. Girod, "Wyner-Ziv coding of light fields for random access," *Proc. IEEE International Workshop on Multimedia Signal Processing, MMSP-2004*, Siena, Italy, Sept. 2004.
- A. Aaron, S. Rane, E. Setton and B. Girod, "Transform-domain Wyner-Ziv codec for video", *Proc. Visual Communications and Image Processing, VCIP-2004*, San Jose, CA, Jan. 2004.
- S. Rane, A. Aaron and B. Girod, "Systematic lossy forward error protection for error resilient digital video broadcasting", *Proc. SPIE Visual Communications and Image Processing, VCIP-2004*, San Jose, CA, Jan. 2004.
- D. Rebollo-Monedero, A. Aaron and B. Girod, "Transforms for high rate distributed source coding," *Proc. Asilomar Conference on Signals and Systems*, Pacific Grove, CA, Nov. 2003. Invited paper.
- X. Zhu, A. Aaron and B. Girod, "Distributed compression for large camera arrays", *Proc. IEEE Workshop on Statistical Signal Processing, SSP-2003*, St Louis, Missouri, Sept. 2003. Invited Paper.
- A. Aaron, E. Setton and B. Girod, "Towards practical Wyner-Ziv coding of video", *Proc. IEEE International Conference on Image Processing, ICIP-2003*, Barcelona, Spain, Sept. 2003.
- A. Aaron, S. Rane, D. Rebollo-Monedero and B. Girod, "Systematic lossy forward error protection for video waveforms", *Proc. IEEE International Conference on Image Processing, ICIP-2003*, Barcelona, Spain, Sept. 2003. Invited Paper.
- A. Aaron, S. Rane, R. Zhang and B. Girod, "Wyner-Ziv coding for video: Applications to compression and error resilience," *Proc. IEEE Data Compression Conference, DCC-2003*, Snowbird, UT, March 2003.
- A. Aaron, R. Zhang and B. Girod, "Wyner-Ziv coding of motion video," *Proc. Asilomar Conference on Signals and Systems*, Pacific Grove, CA, Nov. 2002. Invited Paper.
- A. Aaron and B. Girod, "Compression with side information using turbo codes," *Proc. IEEE Data Compression Conference, DCC-2002*, Snowbird, UT, April 2002.