

Brian A. Heng

Home:

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Woodbury, MN 55129
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Broadcom Corporation
16215 Alton Parkway
Irvine, CA 92618

EDUCATION**MASSACHUSETTS INSTITUTE OF TECHNOLOGY** - Cambridge, MA

Doctor of Philosophy degree in Electrical Engineering and Computer Science, Sept 2005.

Thesis under Professor J.S. Lim titled "Adaptive Multiple Description Mode Selection for Error Resilient Video Communications".

Master of Science degree in Electrical Engineering and Computer Science, May 2001. Thesis under Professor J.S. Lim titled "Application of Deinterlacing for the Enhancement of Surveillance Video".

GPA: 4.9/5.0

UNIVERSITY OF MINNESOTA - Minneapolis, MN

Bachelor of Science degree in Electrical Engineering, June 1999.

GPA: 3.96/4.00

EXPERIENCE**MASSACHUSETTS INSTITUTE OF TECHNOLOGY****ELECTRICAL ENGINEERING AND COMPUTER SCIENCE**

Teaching Assistant for Two-Dimensional Signal and Image Processing

Teaching Assistant for Discrete-Time Signal Processing

Cambridge, MA

Spring 2004 and 2005

Fall 2000 and 2001

BROADCOM CORPORATION**BROADBAND SYSTEMS ENGINEERING**

Engineering Intern

Irvine, CA

Summer 2001 and 2002

- Verified performance of MPEG2 encoder/decoder chips
- Developed utilities for buffer/timing analysis of MPEG2 transport streams
- Wrote utility for MPEG2 to DirecTV transport stream conversion
- Assisted in the development of an MPEG4-AVC / H.264 video codec

COMPAQ COMPUTER CORPORATION**CAMBRIDGE RESEARCH LAB**

Research Intern

Cambridge, MA

Summer 2000

- Worked with research staff examining and improving text-to-speech synthesis
- Gained experience with speech and audio processing
- Developed audio intelligibility test using Visual C++

HONEYWELL TECHNOLOGY CENTER**INFORMATION PROCESSING SYSTEMS**

Student Engineering Research Assistant

Minneapolis, MN

June 1998 to August 1999

- Developed and tested signal-processing algorithms for military project
- Acquired programming skills using Matlab and Visual C++
- Gained experience in a large-scale research project

UNIVERSITY OF MINNESOTA**ACADEMIC COMPUTER SERVICES**

Computer Lab Attendant

Minneapolis, MN

September 1996 to June 1998

- Aided users with hardware and software problems
- Updated and maintained computers in the labs as well as those used in classrooms
- Maintained security of the labs

PUBLICATIONS

B. Heng, J. Apostolopoulos, and J. Lim, "Rate-Distortion Optimized MD Mode Selection for Adaptive Multiple Description Video Coding," to appear in the special issue on "Video Analysis and Coding for Robust Transmission" in the EURASIP Journal on Applied Signal Processing, 1st Quarter 2006.

B. Heng, J. Apostolopoulos, and J. Lim, "End-to-End Rate-Distortion Optimized Mode Selection for Multiple Description Video Coding," to appear in the Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing, Philadelphia, March 2005.

B. Heng and J. Lim, "Multiple Description Coding Through Adaptive Segmentation," 49th Annual Meeting of the SPIE, International Symposium on Optical Science and Technology, Denver, August 2004.

B. Heng, "Multiple Description Video Coding Through Adaptive Segmentation".
Ph.D. Thesis Proposal, Massachusetts Institute of Technology, June 2004.

B. Heng, "Application of Deinterlacing for the Improvement of Surveillance Video". MS Thesis, Massachusetts Institute of Technology, May 2001.

D. Pan, B. Heng, S. Cheung, E. Chang, "Improving Speech Synthesis for High Intelligibility under Adverse Conditions," 6th International Conference on Spoken Language Processing, Beijing, October 2000.

HONORS

- Eta Kappa Nu Electrical Engineering Honor Society - Vice President
- Phi Kappa Phi Honor Society
- 3M Duke Scholarship
- Tau Beta Pi Engineering Honor Society
- University of Minnesota Dean's List
- University of Minnesota Presidential Scholarship
- Chauncey L. Greene Electrical Engineering Scholarship

RELEVANT COURSEWORK

Graduate Courses – MIT

6.341	–	Digital Signal Processing
6.344	–	Two Dimensional Signal Processing
6.431	–	Applied Probability
6.432	–	Stochastic Processes
6.441	–	Information Theory
6.450	–	Digital Communications I
6.451	–	Digital Communications II
6.829	–	Computer Networks
15.401	–	Finance Theory I
15.402	–	Finance Theory II
15.433	–	Investments

Undergraduate Courses – University of Minnesota

EE 3021	–	Probability in Engineering Systems
EE 3061	–	Analog Microelectronics
EE 3062	–	Digital Microelectronics
EE 5002	–	Digital Signal Processing
EE 5202	–	Analog Communication
EE 5203	–	Digital Communication
EE 5358	–	Digital Design with VHDL
EE 5571	–	VLSI Design
EE 5700	–	Information Theory
EE 8207	–	VLSI Digital Signal Processing Systems
CSCI 5301	–	Numerical Mathematics and Computing