# CURRICULUM VITAE

**Nam Ling**, **Ph.D., IEEE Fellow, IET Fellow**
Sanfilippo Family Professor (University Endowed Chair)
Chair, Department of Computer Engineering
Santa Clara University
500 El Camino Real
Santa Clara, CA 95053-0566, U.S.A
Phone: 1-408-554-4794 (Work)
E-mail: nling@scu.edu

As of Date: October 15, 2013

## MAJOR POSITIONS (EMPLOYMENTS)

Current Position:
**Sanfilippo Family Professor (University Endowed Chair)**
**Professor (tenured)** and **Chair,** Department of Computer Engineering
Santa Clara University, Santa Clara, California, USA.

September 2010 - Present:
**Sanfilippo Family Professor (University Endowed Chair),** Santa Clara University, Santa Clara, California, USA.

September 2001 - Present:
**Professor (tenured),** Department of Computer Engineering, Santa Clara University, Santa Clara, California, USA.
(Also **Director, Multimedia Compression Laboratory**, Department of Computer Engineering, Santa Clara University, 1997 - present.)

September 2010 – Present:
**Chair**, Department of Computer Engineering, Santa Clara University, Santa Clara, California, USA.

July 2007 – August 2010:
**Associate Dean for Research and Faculty Development**, School of Engineering, Santa Clara University, Santa Clara, California, USA.

June 2002 – June 2007:
**Associate Dean for Graduate Studies and Research**, School of Engineering, Santa Clara University, Santa Clara, California, USA.
(Acting Associate Dean, School of Engineering, Santa Clara University, May 2002.)
**Acting Dean**, School of Engineering, Santa Clara University (during various short periods in 2004 - 2006.)

September 1994 – August 2001:
**Associate Professor (tenured)**, Department of Computer Engineering, Santa Clara University, Santa Clara, California, USA.

September 1999 – December 1999:
**Acting Chair**, Department of Computer Engineering, Santa Clara University, Santa Clara, California, USA.

September 1989 - August 1994:
**Assistant Professor**, Department of Computer Engineering (previously Department of Electrical Engineering and Computer Science), Santa Clara University, Santa Clara, California, USA.
(Also **Arthur Vining Davis Junior Faculty Fellow**, July 1, 1991 - September 30, 1992.)

August 1984 - July 1989:
**Research Assistant and Teaching Assistant** in The Center for Advanced Computer Studies and the Department of Electrical and Computer Engineering, University of Southwestern Louisiana, Lafayette, Louisiana, USA (now known as University of Louisiana at Lafayette).

May 1981 - December 1983:
**Process Engineer and Product Engineer**, Hewlett Packard (HP) Company, Singapore.
Responsibilities: Computer IC chips product development and transfer to production, equipment procuring, packaging, testing, and failure analysis.


## OTHER POSITIONS (EMPLOYMENT/LONG TERM CONSULTING)

September 2002 - Present:
**Consulting Professor,** NUS College in Silicon Valley, National University of Singapore (NUS).

January 1998 – August 1998 (On sabbatical leave from Santa Clara University):
**Senior Research Fellow**, Center for Signal Processing, Nanyang Technological University, Singapore.

1994 – Present:
In addition to above, for a complete list of visiting and consulting positions, please see the section on visiting and consulting positions.


## EDUCATION

**Ph.D. (Computer Engineering)**, The Center for Advanced Computer Studies, University of Louisiana at Lafayette, Lafayette, Louisiana, USA (then known as University of Southwestern Louisiana), December 1989.
(GPA = 4.0 out of 4.0)
Ph.D. Dissertation: "Systolic Temporal Arithmetic: A New Formalism for Specification, Verification, and Synthesis of Systolic Arrays."

**M. S. in Computer Engineering**, The Center for Advanced Computer Studies, University of Louisiana at Lafayette, Lafayette, Louisiana, USA (then known as University of Southwestern Louisiana), December 1985.
(GPA = 4.0 out of 4.0)
M.S. Thesis: "Mixed Packet Design for Packetized Voice Transmission over Integrated Services Digital Network."

**B. Eng. (Electrical Engineering)**, National University of Singapore, Singapore, May 1981.


## HONORS AND AWARDS

### (1) ACADEMIC / PROFESSIONAL HONORS AND AWARDS:

1. **Tsuiying Chair Professor**, Lanzhou University, China, awarded and effective June 27, 2012.
   (Tsuiying Chair Professorships are awarded by Lanzhou University to overseas professors with outstanding academic and scholarly qualifications upon reviewed by its academic committee.)

2. **IET Fellow** – elected on April 28, 2011, effective April 2011.
   (The Institution of Engineering and Technology (IET) Fellow is selected based on successful leadership or outstanding service to the profession over an extended period.)

3. **Sanfilippo Family Professor (University Endowed Chair)**, Santa Clara University, awarded June 2, 2010, effective September 1, 2010.
   (Sanfilippo Family Professorship is a University Endowed Chair position. It is awarded to faculty member who has distinguished himself/herself as a teaching scholar who fosters the highest ideals of a Catholic, Jesuit education – creative scholarship with teaching, collegiality and collaboration with faculty and students, and incorporation of intellectual foundations for ethics and justice.)

4. **2009 Award for Teaching Excellence**, School of Engineering, Santa Clara University, awarded on February 17, 2010.
   (An honor bestowed by Santa Clara University School of Engineering, the award was created to recognize excellence in teaching on the part of the faculty. Only one award is given each year.)

5. **IEEE Fellow - for contributions to video coding algorithms and architectures**, elevated on November 15, 2007, effective January 1, 2008.
(IEEE is The Institute of Electrical and Electronics Engineers. Fellow is one of the most prestigious honors of the IEEE and is bestowed upon a very limited number of Senior Members who have made outstanding contributions to the electrical and information technologies and sciences for the benefit of humanity and the profession. The number of IEEE Fellows elevated in a year is no more than 0.1% of the total IEEE voting membership. The IEEE Fellow is the highest grade of membership in the IEEE.)

6. **University Award for Sustained Excellence in Scholarship**, Santa Clara University, awarded on September 11, 2007.
(This is the University's highest honor for scholarly achievement. This award recognizes the outstanding achievements of a faculty member who has demonstrated sustained excellence in scholarly or creative work and who has been a member of the faculty of Santa Clara University for a minimum of ten years. Only one award is given each year.)

7. **IEEE Distinguished Lecturer (Circuits and Systems)**, named for 2007 – 2008 (second time).
(This is appointed by the IEEE Circuits and Systems Society Distinguished Lecturer Program.)

8. **President's Recognition Award**, Santa Clara University, awarded on September 13, 2005.
(The President's Recognition Award honors faculty who set an example for students and colleagues as teaching scholars and whose recent work has advanced the mission of Santa Clara in significant ways.)

9. **2003 IEEE ICCE Best Paper Award (First Place Winner)** for our paper, Gunnar Hovden and Nam Ling, "MPEG-4 FAP Generation as an Optimization Problem." Award was received at the 2005 IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, Nevada, USA, on January 11, 2005.
(This award is given to the best paper presented at the IEEE International Conference on Consumer Electronics (also published in the Digest of Technical Papers for ICCE) each year. Our winning paper was presented at the conference in Los Angeles, California, USA, June 17 – 19, 2003. Our paper was the first place winner. ICCE is the flagship conference of IEEE Consumer Electronics Society.)

10. **University Award for Recent Achievement in Scholarship**, Santa Clara University, awarded on September 17, 2002.
(One of the two highest honors bestowed by Santa Clara University recognizing faculty scholarship, it was created in year 2000 to recognize scholarly or creative work by a faculty member over the previous five years, and the work represents a major contribution to a field of knowledge or to the arts. Only one award is given each year. Ling is the third recipient of this award since its creation.)

11. **IEEE Distinguished Lecturer (Circuits and Systems)**, named for 2002-2003.
(This is appointed by the IEEE Circuits and Systems Society Distinguished Lecturer Program.)

12. **1999 Researcher of the Year**, School of Engineering, Santa Clara University, awarded on May 13, 2000.
(An honor bestowed by Santa Clara University School of Engineering, it was created to recognize scholarly achievements on the part of the faculty. Only one award is given each year.)

13. **Appreciation for Outstanding Contribution on Leading MPEG-4 Activity**, Center for Signal Processing, Nanyang Technological University, Singapore, awarded on August 21, 1998.
(Awarded by the organization in appreciation of leadership in MPEG-4 activity, this research led to a major business contract with a multi-national company.)

14. **IEEE Computer Society Certificate of Appreciation**, awarded August 25, 1997.
(This was to recognize Ling's service to the IEEE Computer Society by serving as General Chair of the 1995 Hot Chips Symposium.)

15. **Outstanding Achievement Award in Teaching, Research, and Service**, Santa Clara University, awarded on April 3, 1992.
(Awarded by Santa Clara University, it was given to faculty members with outstanding achievement in teaching, research, and service.)

16. **Arthur Vining Davis Junior Faculty Fellowship**, period: July 1, 1991 - September 30, 1992, awarded on March 14, 1991.

(Awarded by Santa Clara University, one award was given each year to an Assistant Professor on a competitive basis for a research or creative project.)

17. **U.S. National Science Foundation (NSF) Research Initiation Award**, performance period: July 1, 1990 – June 30, 1993, awarded on May 25, 1990.

18. **Graduate Honors** (GPA = 4.0 out of 4.0), University of Louisiana at Lafayette (then known as University of Southwestern Louisiana), USA, recognized on March 25, 1986.

<u>Note</u>: For a complete list of research grants received, please see the section on research grants and teaching grants.

**(2) OTHER NOTABLES:**
(This sub-section highlights a few details in research and professional activities as "notables"; some of these details are also listed in later sections.)

- *General Co-Chair* for 2nd International Workshop on Video Coding and Video Processing (VCVP), Shenzhen, China, January 21 - 23, 2014.
- *Guest Co-Editor*, *IEEE Journal of Selected Topics in Signal Processing* (Special Issue on Video Coding: HEVC and Beyond), expected 2013.
- *Technical Program Co-Chair*, 2013 IEEE Visual Communications and Image Processing Conference (VCIP), Kuching, Sarawak, Malaysia, November 17 - 20, 2013.
- Recognized for special accomplishments during the past year, due to the work on 3D High Efficiency Video Coding adopted as part of the normative (required) international standard for 3D coding (Ling and his team). Recognized at Santa Clara University Faculty Recognition Dinner, September 17, 2013.
- *General Chair*, 2013 IEEE International Conference on Multimedia and Expo (ICME), San Jose, California, USA, July 15 – 19, 2013.
- *Associate Editor*, *Multidimensional Systems and Signal Processing: An International Journal* (MSSP), Springer, appointed 2012 – 2015.
- *Keynote Speaker,* IET International Conference on Ubi-media Computing and IET International Conference on Frontier Computing (IET U-media and IET FC), Xining, China, August 16 - 18, 2012. [Keynote Speech Title: "Next Generation Video Coding – HEVC with a Special Look at Intra Prediction".]
- *Keynote Speaker,* 7th IEEE Conference on Industrial Electronics and Applications (ICIEA), Singapore, July 18 – 20, 2012. [Keynote Speech Title: "High Efficiency Video Coding and its 3D Extension: A Research Perspective".]
- *Guest Professor of Shanghai Jiao Tong University* (the honor of Guest Professor is exclusively offered to the selective globally admired experts after the review of the academic committee of the University), May 2006 – present.
- *Keynote Speaker,* 3rd IEEE International Conference on Adaptive Science and Technology (ICAST), Abuja, Nigeria, November 24 - 26, 2011. [Keynote Speech Title: "Video Compression – A New Era".]
- *Technical Program Co-Chair* for 2010 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC), Singapore, December 14 - 17, 2010.
- *Technical Program Co-Chair* for 2010 IEEE Asia Pacific Conference on Circuits and Systems (APCCAS), Kuala Lumpur, Malaysia, December 6 – 9, 2010.
- *Distinguished Invited Lecture Speaker*, 5th IEEE Conference on Industrial Electronics and Applications (ICIEA), Taichung, Taiwan, June 15 – 17, 2010. [Lecture Title: "Expectations and Challenges for Next Generation Video Compression".]
- *Keynote Speaker,* 2009 Joint Conferences on Pervasive Computing (JCPC), Tamsui, Taiwan, December 3 – 5, 2009. [Keynote Speech Title: "Video Coding Technology and Applications: What Have We Seen? What Will We See?".]
- *Keynote Speaker*, 2008 IEEE Asia Pacific Conference on Circuits and Systems (APCCAS), Macao, China, November 30 – December 3, 2008. [Keynote Speech Title: "Video Coding – A Look at Future Challenges".]
- *Keynote Speaker*, 1st International Workshop on Video Coding and Video Processing (VCVP), Shenzhen, China, November 26 - 28, 2008. [Keynote Speech Title: "Future Challenges in Video Coding, with a Special Look at Motion Estimation".]
- *General Co-Chair* for1st International Workshop on Video Coding and Video Processing (VCVP), Shenzhen, China, November 26 - 28, 2008.
- *Chair* of the IEEE Circuits and Systems Society Technical Committee on Circuits and Systems for Communications, May 2006 – May 2008.

- *Technical Program Co-Chair* for 2007 IEEE International Symposium on Circuits and Systems (ISCAS), New Orleans, Louisiana, U.S.A, May 27 – 30, 2007 (ISCAS is the flagship conference of the IEEE Circuits and Systems Society, with more than 2,400 papers submitted and an attendance of about 1,500).
- *Program Co-Chair* for 2007 IEEE Workshop on Signal Processing Systems (SiPS), Shanghai, China, October 17 – 19, 2007.
- *One of the "Best Minds"* met by researchers in the 4th Industrial Technology Research Institute (ITRI) (Taiwan) Elite Researchers Program: "Meet the Best Minds," May 17, 2005.
- *Speaker* and *Panelist* of the prestigious U.S. Taiwan High-tech Forum (sponsored by the Silicon Valley Chapter of the North America Taiwanese Engineers' Association), September 10-11, 2004.
- *Distinguished Visiting Professor* to National Dong Hwa University, Taiwan, program co-sponsored by Taiwan's Ministry of Education, March 24-30, 2004.
- *Speaker* of the prestigious *Shannon Lecture Series* at Stanford University (sponsored by Santa Clara Valley Chapter of the IEEE Computer Society and the Stanford Student Chapter of the IEEE), March 18, 2004.
- *Associate Editor* (Signal Processing and Multimedia), *IEEE Transactions on Circuits and Systems – I: Fundamental Theory and Applications*, appointed for 2002-2003.
- *Program Chair* for Third International Workshop on Digital and Computational Video (DCV), Clearwater Beach, Florida, USA, November 14-15, 2002.
- *Program Co-Chair* for 2000 IEEE Workshop on Signal Processing Systems (SiPS), Lafayette, Louisiana, USA, October 11-13, 2000.
- *Primary author of a book* (co-authored with M. A. Bayoumi), titled *Specification and Verification of Systolic Arrays*, published by World Scientific Publishing Company Pte. Ltd., Singapore, August 1999.
- Received appreciation plaque for contributing and presenting at the first Singapore MPEG Seminar, Nanyang Technological University, June 10, 1998.
- Invited by Dr. Yuan T. Lee, President of Academia Sinica and a Nobel laureate, to give a seminar at Academia Sinica, the premier research institute in Taiwan. Seminar given in July 1996.
- *General Chair* for IEEE Hot Chips Symposium VII, a conference with a total attendance of about 1,000, held at Stanford University, Stanford, California, USA, August 13-15, 1995.
- *Chair* of IEEE Computer Society Technical Committee on Microprocessors and Microcomputers, 1993 – 1995.
- More than 90 invited colloquia/seminars in eight different countries (including universities, companies, and research organizations), 1989 – present. For a complete list, please see the section on invited colloquia/seminars.
- More than 170 publications in refereed journals, books, and refereed conferences, August 1987 - present.

## RESPONSIBILITIES AND MAJOR ACCOMPLISHMENTS AS DEPARTMENT CHAIR

- Overseeing
  - **Department of Computer Engineering,** School of Engineering, Santa Clara University (2010 – present).

- The Department of Computer Engineering has:
  - One Ph.D. program (Computer Science and Engineering (CSE)), one Engineer's degree program, two M.S. programs (CSE, Software Engineering), two B.S. programs (CSE, Web Design and Engineering (WDE)), several certificate programs, and an open-university program.
  - Two full Professors, seven Associate Professors, one Assistant Professor, one Adjunct Assistant Professor, four Full-time Lecturers, 23 Quarterly Part-time Lecturers, and an Administrative Assistant.
  - Advisory board of about 10 members.
  - Approximately 25 Ph.D. students, 210 M.S. students, and 170 B.S. students.
  - More than 100 courses per year, in addition to labs, senior design projects, and graduate research.

- Management and Leadership
  - Managed and led Department faculty and staff, assigned work, chaired departmental meetings, and conducted performance evaluations, 2010 – present.
  - Co-chaired the advisory board, 2010 – present.
    - Increased advisory board involvement in Department activities, 2012.
  - Worked with the Dean on plans and other matters related to the School of Engineering, 2010 – present.

- Planning, Continuous Improvement, and Faculty Strength
  - Led and worked with the Department and its faculty on strategic plans and needs, 2010 – present.
  - Led and worked with the Department and its faculty on continuous improvement of curriculum, student learning, enrolment, and faculty workload, 2010 – present.

- o Led and oversaw full-time faculty search and hiring, 2011 – present.
  - Successfully acquired, searched, and hired a new Adjunct Assistant Professor and a new Lecturer, 2012 – 2013.
  - Successfully acquired, searched, and hired a new tenure-track Assistant Professor, 2011-2012.
  - Successfully acquired, searched, and hired a new Lecturer (shared 50/50 with Electrical Engineering Department), 2012.
  - Successfully retained, searched, and re-hired Lecturers - one in 2011, one in 2012, two in 2013.
- o Led departmental level process related to faculty promotion & tenure, 2011 – present.
  - One faculty promotion from Academic Year Lecturer to Renewable-Term Lecturer, 2011.

- Assessment
  - o Led the Department through the Accreditation Board for Engineering and Technology (ABET) accreditation process (both Engineering Accreditation Commission (EAC) and Computing Accreditation Commission (CAC)) successfully in its final year, 2010-2011.
  - o Led the Department in annual self-assessment processes, 2010 – present.

- Research & Faculty/Staff Development
  - o Evaluated faculty grant proposals and leave requests, 2010 – present.
  - o Mentored faculty members to be successful teaching scholars, 2010 – present.
  - o Oversaw faculty research lab space arrangement, 2011 – present.
  - o Nominated faculty and staff for awards, 2010 – present.
  - o Led the mid-probationary review and the junior faculty development leave proposal review for one faculty, 2013.

- Academic Programs and Curriculum
  - o Worked with faculty, staff, and other departments on undergraduate and graduate yearly course plans, 2010 – present.
  - o Oversaw policies and quality related to senior projects, M.S. and Ph.D. theses, and directed research, 2011 – present.
  - o Led the Departmental curriculum revision and bulletin updates processes, 2010 – present.
    - B.S. CSE program - worked with Electrical Engineering Department to revise circuits course sequence to enable the inclusion of principles of programming languages as a required course, 2011.
    - B.S. WDE program – appointed a committee to revise and strengthen the WDE curriculum, 2012.
  - o Oversaw teaching quality and related student matters, 2010 – present.
  - o Oversaw Teaching Assistant needs and assignments, 2011 – present.

- Finance
  - o Worked with Admin Assistant and Senior Assistant Dean on Department budget allocation and usage, 2010 – present.
  - o Approved Department faculty and staff expenditures, 2010 – present.

- Students
  - o Contacted/met admitted students, prospective students, and parents (undergrads), 2010 – present.
  - o Resolved complaints from students, 2010 – present.
  - o Approved paperwork for students, 2010 – present.
  - o Advised students, 2010 – present.
  - o Coordinated PhD Prelim Exams, 2010 – present.
  - o Oversaw related student awards, 2010 – present.

- External Relations & Events
  - o Served as contact for companies for student hiring and partnership with faculty, 2010 – present.
  - o Presented "State of the Department" at meetings – adjunct lecturer lunches, School industrial advisory board (IAB) meetings, and Department advisory board meetings, 2010 – present.
  - o Worked with Admin Assistant and faculty on organizing events for faculty, students, and board, 2010 – present.
  - o Worked with various parties and led the Department on the articulation agreement for the "3+2" BA + MS program between Santa Clara University and the proposed Jesuit Liberal Arts College of Hong Kong, 2012 – present.

- Led the faculty exchange process between the Department and the Department of Information and Computer Science of the Catholic University of Uruguay, 2012 – present.
- Co-hosted an animation event with the Art & Art History Department and the Communication Department, 2011.

- Recruitment & Retention
  - Led the Department in student recruiting, 2011 – present.
    - Effort led to highest freshmen enrolment in recent years.
    - Effort led to highest undergraduate student enrolment in recent years.
    - Effort led to highest graduate student enrolment in recent years.
    - Assigned faculty duties and presented at Preview Days and Open Houses.
  - Served as advisor in Summer Orientations, 2011 - present.
  - Participated in other student recruiting events, 2010 – present.
  - Worked with Admin Assistant in organizing special departmental events, 2010 – present.
  - Presented at the School of Engineering "PhD night" event, May 2013.


## RESPONSIBILITIES AND MAJOR ACCOMPLISHMENTS AS ASSOCIATE DEAN

- Overseeing
  - **Research** and **Faculty Development** in the School of Engineering, Santa Clara University (2007 – 2010).
  - **Graduate Studies** and **Research** in the School of Engineering, Santa Clara University (2002 – 2007).

- The School of Engineering had the following graduate programs during my term:
  - Ph.D., M.S., and Engineer's degrees in Computer Engineering, Electrical Engineering, and Mechanical Engineering.
  - M.S. degrees in Software Engineering, Engineering Management and Leadership, Applied Mathematics, and Civil Engineering.
  - Certificate programs in different fields in Computer, Electrical, and Mechanical Engineering.
  - Open University.

- Led and worked with the Dean, the Assistant Dean, Department Chairs, and the School Graduate Program Leadership Council (GPLC) in academic policy setting related to Engineering graduate studies (curriculum improvement, Ph.D. exams/theses/policies, cooperative education, international student course load, open university, and other related matters) and quality of instruction.
  - Spoke at the "Ph.D. Night" event (to about 70 current and potential Ph.D. students), May 20, 2009.
  - Streamlined and strengthened Ph.D. policies related to doctoral committee and duration of study, 2009.
  - Worked with Department Chairs and a consultant to improve the quality of term-lecturers in graduate programs, 2003 - 2004. Produced a "Quality of Term-Lecturers – Guidebook", 2004.
  - Streamlined and strengthened Ph.D. graduation procedure and thesis format, 2003 - 2004.
  - Worked with the University International Student Service in establishing academic policy related to international students, 2002 - 2003.

- Planned strategic goals for graduate studies in Engineering (program's missions, budgeting, enrollment, industrial relations, and other related matters).
  - Led and co-led the effort in Engineering Graduate Program Review and Learning Outcomes, 2005 - 2008.
  - Worked with the Assistant Dean and the Graduate Services Director to assist the Dean in proposing and projecting enrollment, tuition rate & revenue, and financial aid need for graduate programs, 2003 - 2007.
  - Participated in the academic effort in improving graduate enrollment, 2004 - 2007.
  - Oversaw the revision of foreign transcript checking process and revised the GRE requirement process for admissions, 2006 - 2007.

- Improved graduate curriculum in Engineering. Created and offered graduate courses in line with the University's and the program's missions.
  - Offered courses in ethical and societal issues, law and intellectual property issues, as well as multicultural and gender issues, 2002 - 2007.
  - Created a new interdisciplinary Bioinformatics certificate program in the School of Engineering, 2004.
  - Created and started five courses in the new area of Bioinformatics, 2003 - 2004.

- Globalization effort and building University-Industry partnerships for academic cooperation and programs.

- o Initiated the effort to collaborate with Shanghai Jiao Tong University, China. The first memorandum of understanding (MOU) between the two Universities (Santa Clara and Shanghai Jiao Tong) was signed in August 2009 as a result of a team effort under the leadership of the School Graduate Studies office.
  - o Led the effort and worked with Lockheed Martin and the University of Denver on establishing the Santa Clara University – Lockheed Martin Partnership for the company's Engineering Leadership Development Program (ELDP) at Santa Clara University, 2005 - 2007. The first course with a record high enrolment commenced in Spring 2007.
  - o Created and implemented a course on "Building Global Teams" to help students understand the global working environment, 2004.

- ▪ Oversaw and enhanced faculty research and grant activities. Managed the use of indirect cost fund and student financial aid (jointly with the Dean and the Assistant Dean) to promote scholarship in the school.
  - o Served as an Engineering representative to the University Special Taskforce on Patents and Inventions, 2008 – 2010.
  - o Oversaw and reported yearly faculty scholarship accomplishments for the school, 2005 - 2009.
  - o Reviewed and approved external grant proposals from Engineering faculty, 2002 - 2010.
  - o Managed (with the Dean and the Assistant Dean) the indirect cost fund and the financial aid fund to help improve scholarship in the School (e.g. research assistantships and School faculty grants), 2003 – 2010.
  - o Led the effort in creating, structuring, and proposal selecting for the School's Kuehler Undergraduate Research Program, based on a US$1 million gift from Kuehler, 2005 – 2010.
  - o Assisted the Dean in evaluating University internal grant proposals submitted by Engineering faculty, 2005 - 2010.
  - o Created and led different Engineering research task forces & committees to help reviewing internal proposals and encouraging Engineering faculty to reach increased levels of scholarship productivity, 2003 – 2010.
  - o Worked with the Dean and the Provost office on University research policies – including policies related to the hiring of research and teaching assistants/associates, as well as policies related to intellectual property, 2007 – 2008.
  - o Strengthened and streamlined external grant proposals submitting procedure, 2003.

- ▪ Oversaw other faculty development activities for the School.
  - o Served as the Engineering representative to the University Faculty Development Advisory Council, 2007 – 2010.
  - o Led the selection process for the School's faculty awards, 2004 – 2010.
  - o Assisted the Dean in formulating funding priorities for the School, 2010.
  - o Led the effort in structuring the School's best practices for the support of tenured Associate Professors for promotion to full Professors, 2006 - 2007.
  - o Led the effort in structuring the School's best practices for the support of Engineering faculty seeking tenure, 2005 – 2006.

- ▪ Leadership and organization in the School of Engineering.
  - o Acting Dean, School of Engineering, during various short periods in 2004 – 2006.
  - o Worked with the Dean and the other two Associate Deans to redefine the duties of each Associate Dean, May – June 2003.

- ▪ Worked with and/or assisted the Engineering Graduate Services Office.
  - o Worked with the Engineering Graduate Services Office on events such as open houses, student orientations, and presentations at companies, 2002 – 2007.
  - o Worked with the Engineering Graduate Services Office on activities such as enrolment improvement, surveys, and bulletin revisions, 2002 – 2007.
  - o Worked with the Assistant Dean and others on Graduate Services Office hiring, 2004 – 2007.
  - o Oversaw the administration of Engineering Graduate Services (budgeting, marketing, admission, registration, graduation, course scheduling, term faculty hiring, and other related matters), 2002 - 2004.
  - o Completed the search process and hired the Director of Graduate Programs, May – July 2002.
  - o Managed the Director of Graduate Programs, who was responsible for managing the staff of the Engineering Graduate Office, 2002 - 2004.
  - o Worked with the Director of Graduate Programs to reorganize the Graduate Office and hire two staff members, 2003.

- ▪ Related publications and talks.

- Nam Ling, "The Mentoring Program in Engineering," published in *The Teaching Scholar* (The Newsletter of the Faculty Development Program), Santa Clara University, Volume 7, Issue 1, Fall 2007.
- Served as Panelists/Speakers at several Santa Clara University Faculty Development/Teaching-Scholar/Research Workshops/Symposia, 2001 – present.

- Other experiences and contributions.
  - Organized teaching assistant orientation and training sessions, 2009 – 2010.
  - Oversaw and led the selection process for the following graduate student scholarships: (a) David and Lucile Packard Foundation Fellowship, and (b) Edward M. Fellows Foundation Scholarship, 2007 – 2010.
  - Worked with Department Chairs and Assistant Dean on allocating teaching assistantships (TAs), 2008 – 2010.
  - Provided academic guidance and approvals to graduate students, 2002 – 2010.
  - Led the effort in re-structuring University Ph.D. conferral procedure at commencements, June 2009.
  - Created and oversaw the selection process for the Graduate Academic Excellence in Engineering Awards for outstanding graduate students, 2006 - 2007.
  - Created Ph.D. recognition text for University graduate commencement ceremonies, May 2006.
  - Oversaw the Dean's Fellowship program, 2002 – 2005.

## RESPONSIBILITIES AS PROFESSOR

- Teaching undergraduate and graduate courses, improving course/lab contents and curricula, as well as advising and supervising students in their study plans, research, and projects.
- Conducting scholarly research, publishing and presenting research results, and acquiring research funds.
- Serving in professional organizations and on university committees, contributing to community service and consulting.

## RESEARCH AND TEACHING INTERESTS

General Interests:
* Video Coding
* Video Communication
* Multimedia Data Compression (Video, Image, Audio)
* Computer Architecture

Special Interests:
* Methods for HEVC, 3D-HEVC, and H.264/AVC Video Coding
* Motion Estimation
* Video Rate Control
* 3D Video Coding
* Intra Prediction
* Video Encoder/Decoder Architecture
* Face Animation
* Systolic Arrays

## RESEARCH PUBLICATIONS

More than 170 publications (book, book chapters, refereed journals, and refereed conferences):

**(1) BOOKS:**

1. Li Song and Nam Ling, *Perceptual Video Coding: Model, Algorithm and Implementation*, accepted to be published by Springer, expected 2014.

2. Nam Ling and M. A. Bayoumi, *Specification and Verification of Systolic Arrays*, published by World Scientific Publishing Company Pte. Ltd., Singapore, 1999.

**(2) KEYNOTE/DISTINGUISHED INVITED PAPERS/ABSTRACTS FOR REFEREED CONFERENCES:**

3.  Nam Ling, "Next Generation Video Coding – HEVC with a Special Look at Intra Prediction", Keynote Speech presented at *IET International Conference on Ubi-media Computing* and *IET International Conference on Frontier Computing (IET U-media and IET FC)*, Xining, China, August 16 - 18, 2012.

4.  Nam Ling, "High Efficiency Video Coding and its 3D Extension: A Research Perspective," Keynote Speech presented and published in *Proceedings of the 2012 7th IEEE Conference on Industrial Electronics and Applications (ICIEA)*, Singapore, pp. 2153 – 2158, July 18 – 20, 2012.

5.  Nam Ling, "Video Compression – A New Era," Keynote Speech presented at the *3rd IEEE International Conference on Adaptive Science and Technology (ICAST)*, Abuja, Nigeria, November 24 - 26, 2011.

6.  Nam Ling, "Expectations and Challenges for Next Generation Video Compression," presented and published in Distinguished Invited Lectures in *Proceedings of the 2010 5th IEEE Conference on Industrial Electronics and Applications (ICIEA)*, Taichung, Taiwan, pp. 12 – 17, June 15 – 17, 2010.

7.  Nam Ling, "Video Coding Technology and Applications: What Have We Seen? What Will We See?" Keynote Speech presented and published in the *2009 Joint Conferences on Pervasive Computing (JCPC)*, Tamsui, Taiwan, December 3 – 5, 2009.

8.  Nam Ling, "Video Coding – A Look at Future Challenges," Keynote Speech presented at the conference and published in *Proceedings of the 2008 IEEE Asia Pacific Conference on Circuits and Systems (APCCAS)*, Macao, China, November 30 – December 3, 2008.

9.  Nam Ling, "Future Challenges in Video Coding, with a Special Look at Motion Estimation," Keynote Speech presented and published in *1st International Workshop on Video Coding and Video Processing (VCVP)*, Shenzhen, China, November 26 – 28, 2008.

**(3) BOOK CHAPTERS:**

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116. Z. G. Li, Nam Ling, C. Zhu, X. K. Yang, G. N. Feng, S. Wu, and P. Feng, "Adaptive Unequal Error Control for Video Over the Internet," presented and published in *Proceedings of the IEEE International Conference on Multimedia and Expo (ICME)*, Lausanne, Switzerland, pp. 169-172, August 26 – 29, 2002.

117. Z. G. Li, C. Zhu, F. Pan, G. Feng, X. Yang, S. Wu, and Nam Ling, "A Novel Joint Rate Control Scheme for the Coding of Multiple Real Time Video Programs," presented and published in *Proceedings of the 22nd International Conference on Distributed Computing Systems Workshops (ICDCS)*, Vienna, Austria, pp. 241 – 245, July 2-5, 2002. (*4th International Workshop on Multimedia Network Systems and Applications (MNSA)).*

118. Z. G. Li, Nam Ling, G. N. Feng, C. Zhu, X. K. Yang, S. Wu, and F. Pan, "Packetization Algorithms for MPEG-4 Fine Granularity Scalability over the Internet," presented and published in *3rd IEEE Workshop and Exhibition on MPEG-4 (WEMP4)*, San Jose, California, USA, pp. 17 – 20, June 25-27, 2002.

119. Nam Ling and Nien-Tsu Wang, "A Real-Time HDTV Video Decoder," presented and published in *Proceedings of the 2001 IEEE Workshop on Signal Processing Systems (SiPS),* Antwerp, Belgium, pp. 259-270, September 26-28, 2001.

120. J. Thinakaran, D.-J. Ho, and Nam Ling, "Fast Shape Decoding for MPEG-4 Video," presented and published in *Proceedings of the 2000 IEEE Workshop on Signal Processing Systems (SiPS)*, Lafayette, Louisiana, USA, pp. 110-119, October 11-13, 2000.

121. Nam Ling, D.-J. Ho, and G. Wu, "Hardware Module for an Adaptive Modeling Unit of Multi-symbol Multiplication-free Arithmetic Encoder," presented and published in *Proceedings of the 2000 IEEE Workshop on Signal Processing Systems (SiPS)*, Lafayette, Louisiana, USA, pp. 285-294, October 11-13, 2000.

122. J. Thinakaran, D.-J. Ho, and Nam Ling, "An Architecture for MPEG-4 Binary Shape Decoder," presented and published in *Proceedings of the 2000 IEEE International Symposium on Circuits and Systems (ISCAS),* Geneva, Switzerland, pp. II-457 – II-460 (Vol. 2), May 28-31, 2000. (*Workshop and Exhibition on MPEG-4*).

123. L.-P. Chau, Nam Ling, G. Hovden, H. Lan, H.-C. Ng, and K.-P. Lim, "An MPEG-4 Real-time Video Decoder Software," presented and published in *Proceedings of the 1999 IEEE International Conference on Image Processing (ICIP)*, Kobe, Japan, pp. 249-253 (Vol. 1), October 25-28, 1999.

124. G. Hovden and Nam Ling, "On Speed Optimization of MPEG-4 Decoder for Real-time Multimedia Applications," published in *Proceedings of 3$^{rd}$ International Conference on Computational Intelligence and Multimedia Applications (ICCIMA)*, New Delhi, India, pp. 399-402, September 23-26, 1999.

125. C.-W. J. Shih, T. Ogunfunmi, and Nam Ling, "Wavelet-Based Embedded Memory Reduction for MPEG Decoder," presented and published in *Proceedings of the 1999 IEEE International Workshop on Multimedia Signal Processing,* Copenhagen, Denmark, pp. 327-332, September 13-15, 1999.

126. C.-W. Shih, Nam Ling, and T. Ogunfunmi, "Memory Reduction by Haar Wavelet Transform for MPEG Decoder," presented and published in *IEEE International Conference on Consumer Electronics (1999 Digest of Technical Papers) (ICCE)*, Los Angeles, California, USA, pp. 116-117, June 22-24, 1999.

127. L.-P. Chau, Nam Ling, G. Hovden, H. Lan, H.-C. Ng, and K.-P. Lim, "A Real-time Realization of MPEG-4 Video Decoder," presented and published in *Proceedings of the 1999 IEEE International Symposium on Circuits and Systems (ISCAS)*, Orlando, Florida, USA, pp. I-222 – I-225 (Vol. 1), May 30 – June 2, 1999.

128. N.-T. Wang and Nam Ling, "A Novel Dual-Path Architecture for HDTV Video Decoding," presented and published in *IEEE Data Compression Conference (DCC)*, Snowbird, Utah, USA, p. 557, March 29-31, 1999.

129. N.-T. Wang, C.-W. Shih, D. J. Wong-Ho, and Nam Ling, "MPEG-2 Video Decoder for DVD," presented and published in *Proceedings of the 8$^{th}$ Great Lakes Symposium on VLSI*, Lafayette, Louisiana, USA, pp. 157-160, February 19-21, 1998.

130. C.-W. Shih and Nam Ling, "Polyphase Filter Architectures for MPEG Audio Using Fast IDCT," presented and published in *Conference Record of the 31$^{st}$ Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, California, USA, November 2-5, 1997.

131. Nam Ling and C.-W. Shih, "Two Polyphase Filter Architectures for MPEG Audio," presented and published in *Proceedings of the 40$^{th}$ Midwest Symposium on Circuits and Systems*, Sacramento, California, USA, August 3-6, 1997.

132. J.-H. Li and Nam Ling, "An Efficient Video Decoder Design for MPEG-2 MP@ML," presented and published in *Proceedings of the 1997 IEEE International Conference on Application Specific Systems, Architectures, and Processors (ASAP)*, Zurich, Switzerland, pp. 509-518, July 14-16, 1997.

133. Nam Ling and J.-H. Li, "A Bus-Monitoring Model for MPEG Decoder Design," presented and published in *IEEE International Conference on Consumer Electronics (1997 Digest of Technical Papers) (ICCE)*, Rosemont, Illinois, USA, pp. 180-181, June 11-13, 1997.

134. J.-H. Li and Nam Ling, "Reflection Operation in Vector Quantizer," presented and published in *Proceedings of the 1996 International Conference on Circuits and System Sciences*, Shanghai, China, pp. 184-187, June 20-25, 1996.

135. Nam Ling and R. Advani, "Architecture of a Fast Motion Estimator for MPEG Video Coding," presented and published in *Proceedings of the 1996 International Symposium on Parallel Architectures, Algorithms, and Networks (I-SPAN)*, Beijing, China, pp. 473-479, June 12-14, 1996.

136. Nam Ling and J.-H. Li , "A Codebook Design Technique for Better Image Quality in Vector Quantization," presented and published in *Proceedings of the IEEE Data Compression Conference (DCC)*, Snowbird, Utah, USA, p. 447, March 31 - April 3, 1996.

137. Nam Ling and R. Advani, "A High Speed Motion Estimator Using 2-D Log Search Algorithm," presented and published in *Proceedings of the IEEE Data Compression Conference (DCC)*, Snowbird, Utah, USA, p. 448, March 31 - April 3, 1996.

138. Nam Ling and J.-H. Li, "A Vector Quantizer with Increased Codebook Patterns," presented and published in *Proceedings of the 29th Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, California, USA, pp. 244-248, October 29 - November 1, 1995.

139. Nam Ling and J.-H. Li, "An Improved Vector Quantizer for Image Compression," presented and published in *Proceedings of the 2nd IASTED/ISMM International Conference on Distributed Multimedia Systems and Applications*, Stanford, California, USA, pp. 209-211, August 7-9, 1995.

140. A. Deb and Nam Ling, "High-Level Synthesis of Fast Video Compression Algorithms," presented and published in *Proceedings of the 37th Midwest Symposium on Circuits and Systems*, Lafayette, Louisiana, USA, pp. 62-65, August 3 -5, 1994.

141. T. Ogunfunmi and Nam Ling, "Comparisons of Different Systolic Arrays for the QR Decomposition-Based Least Squares Technique," presented and published in *Proceedings of the 37th Midwest Symposium on Circuits and Systems*, Lafayette, Louisiana, USA, pp. 306-309, August 3 -5, 1994.

142. R. Bitonio, Nam Ling, and F. Lin, "Compressing Images Using Fractals," presented and published in *Proceedings of the Silicon Valley Personal Computer Design Conference (Volume on Multimedia Subsystems Design)*, San Jose, California, USA, pp. 33 - 42, July 27 - 29, 1994.

143. A. Deb and Nam Ling, "An Integrated System Architecture for Binary Image Understanding," presented and published in *Proceedings of Workshop on Computer Architectures for Machine Perception (CAMP)*, New Orleans, Louisiana, USA, pp. 446-454, December 15-17, 1993.

144. Nam Ling, "A Simple Expert System for the Reasoning of Systolic Designs," presented and published in *Proceedings of the International Conference on Application Specific Array Processors (ASAP)*, Venice, Italy, pp. 128-131, October 25-27, 1993.

145. Nam Ling and T. Shih, "VSTA: A Prolog-Based Formal Verifier for Systolic Array Designs," presented and published in *Proceedings of the 1993 International Conference on Parallel Processing (ICPP)*, St. Charles, Illinois, USA, pp. II-73 to II-76, August 16-20, 1993.

146. K. Ramakrishnan and Nam Ling, "An Efficient Systolic Array Design for the Discrete Sine Transform," presented and published in *Proceedings of the 36th Midwest Symposium on  Circuits and Systems*, Detroit, Michigan, USA, pp. 951- 953, August 16-18, 1993.

147. Nam Ling, J. Huang, and T. Shih, "The Use of Fixed Point Induction in Verifying Systolic Array Designs: An Applicative Approach," published in *Proceedings of the 36th Midwest Symposium on Circuits and Systems*, Detroit, Michigan, USA, pp. 942-944, August 16-18, 1993.

148. T. Ogunfunmi and Nam Ling, "Application of QR Decomposition-Based Least Square Technique to Improve Air Traffic Control Radar," presented and published in *Proceedings of the 36th Midwest Symposium on Circuits and Systems*, Detroit, Michigan, USA, pp. 488-491, August 16-18, 1993.

149. H. Kumar, R. Kalyan, M. A. Bayoumi, A. Tyagi, and Nam Ling, "Parallel Implementation of a Cut and Paste Maze Routing Algorithm," presented and published in *Proceedings of the 1993 IEEE International Symposium on Circuits and Systems (ISCAS)*, Chicago, Illinois, USA, pp. 2035-2038, May 3-6, 1993.

150. T. Shih, Nam Ling, and X. Chen, "A Temporal Rule-Based Expert System for Systolic Array Designs," presented and published in *Proceedings of the 1992 International Conference on Parallel and Distributed Systems (ICPADS)*, Hsinchu, Taiwan, pp. 306-313, Dec. 16-18, 1992.

151. Nam Ling, "Incorporating Formal Techniques Into Systolic Array Synthesis," presented and published in *Proceedings of the 1992 IEEE International Symposium on Circuits and Systems (ISCAS)*, San Diego, California, USA, pp. 451- 454, May 10-13, 1992.

152. F. Lin, T. Shih, Nam Ling, and R. Davis, "Using Prolog as a Tool for Systolic Array Designs," presented and published in *Proceedings of the International Conference & Exhibition on The Practical Application of Prolog, Vol. 1*, London, United Kingdom, pp. 1-27, April 1-3, 1992.

153. Nam Ling, T. Shih, and J. Huang, "Inductive Techniques for Formal Verification of Systolic Array Designs in DSP Applications," presented and published in *Proceedings of the 1992 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Vol. 5*, San Francisco, California, USA, pp. 573-576, March 23-26, 1992.

154. T. Shih, Nam Ling, R. Davis, and F. Lin, "An Automated Design Specification and Verification Tool for Systolic Architectures," presented and published in *Proceedings of the Hawaii International Conference on System Sciences, Vol. II*, Kauai, Hawaii, USA, pp. 6-17, January 7-10, 1992.

155. E. R. Khan and Nam Ling, "Systolic Architectures for Artificial Neural Nets," presented and published in *Proceedings of the International Joint Conference on Neural Networks (IJCNN)*, Singapore, pp. 620-627, November 18-21, 1991.

156. F. Lin, T. Shih, and Nam Ling, "Verification Tool for Systolic Array Design," presented and published in *Proceedings of the Third International Conference on Tools for Artificial Intelligence (TAI)*, San Jose, California, USA, pp. 488-492, November 10-13, 1991.

157. A. Deb and Nam Ling, "A Parallel Architecture for an Integrated Vision System for Binary Images," presented and published in *Proceedings of the Fourth ISMM/IASTED International Conference on Parallel and Distributed Computing and Systems*, Washington, D.C., USA, pp. 214-218, October 8-11, 1991.

158. Nam Ling, F. Lin, T. Shih, and R. Davis, "Automatic Formal Verification of Systolic Array Designs," presented and published in *Proceedings of the International Conference on Application Specific Array Processors (ASAP)*, Barcelona, Spain, pp. 338-354, September 2-4, 1991.

159. F. Lin, T. Shih, and Nam Ling, "Axiomatic Approach for Systolic Array Design," presented and published in *Proceedings of The Logic Programming Conference (LPC)*, Tokyo, Japan, pp. 25-33, July 8-11, 1991.

160. A. Deb and Nam Ling, "A Massively Parallel and Versatile Architecture for Computer Vision," presented and published in *Proceedings of the First Great Lakes Symposium on VLSI*, Kalamazoo, Michigan, USA, pp. 74-79, March 1-2, 1991.

161. E. R. Khan and Nam Ling, "Two-Dimensional Multirate Systolic Array Design for Artificial Neural Networks," presented and published in *Proceedings of the First Great Lakes Symposium on VLSI*, Kalamazoo, Michigan, USA, pp. 186-193, March 1-2, 1991.

162. Nam Ling, "A Fast VLSI Parallel Array Multiplier for DSP Application," presented and published in *Proceedings of the ISMM International Conference on Parallel and Distributed Computing, and Systems*, New York, New York, USA, pp. 29-33, October 10-12, 1990.

163. M. A. Bayoumi, J. L. Shah, and Nam Ling, "Parallel Algorithms Prototyping: A Case Study," presented and published in *Proceedings of the 1990 IEEE International Symposium on Circuits and Systems (ISCAS)*, New Orleans, Louisiana, USA, pp. 3263-3266, May 1-3, 1990.

164. Nam Ling and M. A. Bayoumi, "STA: A Tool for Systolic Array Reasoning," presented and published in *Proceedings of the 1989 IEEE International Symposium on Circuits and Systems (ISCAS)*, Portland, Oregon, USA, pp. 461-464, May 8-11, 1989.

165. Nam Ling and M. A. Bayoumi, "The Design and Implementation of Multidimensional Systolic Arrays for DSP Applications," presented and published in *Proceedings of the 1989 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Glasgow, Scotland, U.K., pp. 1142-1145, May 23-26, 1989.

166. Nam Ling and M. A. Bayoumi, "The Specification and Verification of Systolic Arrays," presented and published in *1988 IEEE Workshop on VLSI Signal Processing*, Monterey, California, USA, November 2-4, 1988. Also appeared in VLSI Signal Processing, III, IEEE Press, 1988.

167. Nam Ling and M. A. Bayoumi, "Algorithms for High Speed Multi-Dimensional Arithmetic and DSP Systolic Arrays," presented and published in *Proceedings of the 1988 International Conference on Parallel Processing (ICPP)*, St. Charles, Illinois, USA, pp.367-374, August 15-19, 1988.

168. Nam Ling and M. A. Bayoumi, "An Algorithm Transformation Technique for Multi-Dimensional DSP Systolic Arrays," presented and published in *Proceedings of the 1988 IEEE International Symposium on Circuits and Systems (ISCAS)*, Espoo, Finland, pp.2275-2278, June 7-9, 1988.

169. Nam Ling and M. A. Bayoumi, "A Testable NORA CMOS Serial-Parallel Multiplier," presented and published in *Proceedings of the 1988 IEEE International Symposium on Circuits and Systems (ISCAS)*, Espoo, Finland, pp.251-254, June 7-9, 1988.

170. Nam Ling and M. A. Bayoumi, "Multi-Dimensional Systolic Networks for DSP Algorithms," presented and published in *Proceedings of the 1988 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, New York City, New York, USA, pp.1922-1925, April 11-14, 1988.

171. Nam Ling, M. A. Bayoumi, and K. S. Reddy, "VLSI Array Implementation of Modified Booth Algorithm," presented and published in *Proceedings of the 1987 South Central Regional ACM Conference*, Lafayette, Louisiana, USA, pp. 205-221, November 19-21, 1987.

172. Nam Ling and M. A. Bayoumi, "A New Testable CMOS Multiplier," presented and published in *Proceedings of the 30th Midwest Symposium on Circuits and Systems*, Syracuse, New York, USA, pp. 536-539, August 17-18, 1987.

**(6) TECHNICAL PROJECT REPORTS:**

Technical project reports produced for projects funded by research grants.


**ADOPTED CONTRIBUTIONS TO INTERNATIONAL STANDARDS**

**(1) NORMATIVE CONTRIBUTIONS ADOPTED:**

1. Zhouye Gu, Jianhua Zheng, and Nam Ling, "3D-CE5.h related: On DMM Simplification," JCT3V-E0242, adopted at the *5th Meeting of Joint Collaborative Team on 3D Video Coding Extension Development (JCT-3V) of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11*, Vienna, Austria, July 27 – August 2, 2013.
(The method was adopted into the 3D-HEVC video coding international standard – including the 3D-HEVC text document JCT3V-E1001 and the *3D-HEVC reference software HTM 8.0* onwards. Our method provides simplified solutions for DMM4 (depth modeling mode 4) mode to remove division in depth wedgelet pattern derivation.)

**(2) INFORMATIVE CONTRIBUTIONS ADOPTED:**

2. Zhouye Gu, Jianhua Zheng, Nam Ling, and Philipp Zhang, "3D-CE5.h related: Fast Intra Prediction Mode Selection for Intra Depth Map Coding," JCT3V-E0238, adopted at the *5th Meeting of Joint Collaborative Team on 3D Video Coding Extension Development (JCT-3V) of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11*, Vienna, Austria, July 27 – August 2, 2013.
(The method was adopted into the 3D-HEVC video coding international standard – including the *3D-HEVC reference software HTM 8.0* onwards. Our method simplifies the mode decision process on 3D-HEVC depth intra coding.)

3. Jun Zhang, Xiaoquan Yi, Nam Ling, and Weijia Shang, "Context Adaptive Lagrange Multiplier (CALM) for Motion Estimation in JM – Improvement," JVT-T046, adopted at the *20th Meeting of Joint Video Team (JVT) of ISO/IEC MPEG & ITU-T VCEG*, Klagenfurt, Austria, July 17 – 21, 2006.
(The method was adopted into the H.264/MPEG-4 AVC video coding international standard – including the text document and the *H.264/AVC reference software JM 12.0* onwards. Our method further improves the rate-distortion performance for fast motion estimation.)

4. Xiaoquan Yi, Jun Zhang, Nam Ling, and Weijia Shang, "Improved and simplified fast motion estimation for JM," JVT-P021, adopted at the *16th Meeting of Joint Video Team (JVT) of ISO/IEC MPEG & ITU-T VCEG*, Poznan, Poland, July 24-29, 2005.
(The method was adopted into the H.264/MPEG-4 AVC video coding international standard – including the *Text Description of Joint Model Reference Encoding Methods and Decoding Concealment Methods* and the *H.264/AVC reference software JM 10.0* onwards. Ours is one of the very few fast motion estimation methods currently exist in the H.264 reference software.)

## PATENTS

1. Lingzhi Liu, Xiang Li, Jianhua Zheng, Nam Ling, and Chen-Xiong Zhang, "Predictive Adaptive Scan Ordering for Video Coding," U.S. Patent granted (Patent Number 8,477,845), issued on July 2, 2013. (U.S. Patent filed (application no. 12/905,872) on October 15, 2010. Provisional U.S. Patent filed (application no. 61/252,443) on October 16, 2009.)

2. Zhouye Gu, Jianhua Zheng, and Nam Ling, "Simplification of Depth Modeling Model," Provisional U.S. Patent filed (application no. 61/866,941) on August 16, 2013.

3. Jianhua Zheng, Zhouye Gu, and Nam Ling, "Method of Depth Intra Coding," Provisional U.S. Patent filed (application no. 61/812,124) on April 16, 2013.

4. Lingzhi Liu, Guichun Li, Nam Ling, Jianhua Zheng, Philipp Zhang, and Li Song, "Reference Pixel Reduction for Intra LM Prediction," U.S. Patent filed (application no. 13/745,134) and PCT Application filed (application no. PCT/US2013/022156) on January 18, 2013. (Note: Provisional U.S. Patent filed (application no. 61/588,359) on January 19, 2012.)

5. Guichun Li, Lingzhi Liu, Nam Ling, Jianhua Zheng, Philipp Zhang, and Li Song, "Simplification of Mode Dependent Intra Smoothing," U.S. Patent filed (application no. 13/744,827) on January 18, 2013. (Note: Provisional U.S. Patent (application no. 61/588,355) was filed on January 19, 2012.)

6. Zhouye Gu, Jianhua Zheng, and Nam Ling, "Method of Low Complexity Depth Intra Coding," Provisional U.S. Patent filed (application no. 61/751,589) on January 11, 2013.

7. Guichun Li, Lingzhi Liu, Changcai Lai, Nam Ling, Jianhua Zheng, and Philipp Zhang, "Mode Dependent Intra Smoothing Filter Table Mapping Methods for Non-Square Prediction Units," U.S. Patent filed, May/June 2012. (Note: Provisional U.S. Patent filed (application no. 61/497,173) on June 15, 2011.)

8. Guichun Li, Lingzhi Liu, Changcai Lai, Nam Ling, Jianhua Zheng, and Philipp Zhang, "Simplified Bilateral Intra Smoothing Filter," U.S. Patent filed, June 2012. (Note: Provisional U.S. Patent filed (application no. 61/503,415) on June 30, 2011.)

9. Lingzhi Liu, Guichun Li, Nam Ling, Jianhua Zheng, and Chengxiong Zhang, "Using Multiple Prediction Sets to Encode Extended Unified Directional Intra Mode Numbers for Robustness," U.S. Patent filed, March 2012. (Note: Provisional U.S. Patent filed (application no. 61/451,432) on March 10, 2011.)

10. Lingzhi Liu, Guichun Li, Nam Ling, Jianhua Zheng, and Chengxiong Zhang, "Improved Multiple Predictor Set for Intra Coding with Intra Mode Prediction," U.S. Patent filed, September 2011. (Note: Provisional U.S. Patent filed (application no. 61/388,485) on September 30, 2010.)

## MEMORANDA OF UNDERSTANDING (MOU)

1. Initiated the effort to collaborate with Shanghai Jiao Tong University (SJTU), China. The first memorandum of understanding (MOU) between the two Universities (Santa Clara and Shanghai Jiao Tong) was signed on August 31, 2009, as a result of a team effort under the leadership of the School Graduate Studies office.
   - Hired a Visiting Associate Professor from SJTU for one year, Oct 2011 – Sep 2012.

2. Spearheaded the process that led to the signing of memorandum of understanding on R & D collaboration (MPEG and DTV technologies) between School of Engineering (Santa Clara University, U.S.A.) and the Center for Signal Processing (Nanyang Technological University, Singapore), Singapore, April 24, 2000.


## RESEARCH GRANTS AND TEACHING GRANTS

### (1) RESEARCH GRANTS:

1. Nam Ling (PI) and Zhouye Gu (Co-PI), "Depth and Mode Coding for HEVC-3D," awarded **Huawei Technologies grant**, US$100,220, performance period: June 20, 2013 – June 19, 2014.

2. Nam Ling, "HEVC 3DV and SVC Extensions," awarded **Santa Clara University School of Engineering Research Grant**, US$31,849, January 24, 2013 (performance period: January 2013 – June 2014).

3. Nam Ling, "Coding of Depth in 3D Video," awarded **Santa Clara University School of Engineering Research Grant**, US$15,511, June 4, 2012 (performance period: July 2012 – June 2013).

4. Nam Ling, "High Efficiency Video Coding – Next Step," awarded **Huawei Technologies grant**, US$70,000, performance period: April 16, 2012 – April 15, 2013.

5. Nam Ling, "Intra Prediction Model for Video Coding," awarded **Huawei Technologies grant**, US$70,000, performance period: March 1, 2011 – December 31, 2012.

6. Nam Ling, "Adaptive Bit-Rate Control for Wavelet-Based Video Coding," awarded **Droplet Technology, Inc. grant**, US$125,500, performance period: June 1, 2010 – July 31, 2012.

7. Nam Ling, "Intra Prediction for Next Generation Video Compression," awarded **Santa Clara University School of Engineering Research Grant**, US$23,122, performance period: February/March 2011 – June 30, 2012.

8. Nam Ling, "Project Astra: 3-D Visualization of a Virtual Universe," awarded **Santa Clara University School of Engineering Kuehler Undergraduate Research Grant,** US$3,052, performance period: Summer 2011.

9. Nam Ling, "High-Performance Video Codec System," awarded **Santa Clara University Technology Innovation Grant**, US$12,304, performance period: January 2011 – June 30, 2011.

10. Nam Ling, "Next Generation Video Coding," awarded **Santa Clara University School of Engineering Research Grant**, US$10,371, performance period: January 2010 – June 30, 2011.

11. Nam Ling, "3-D Graphics and Video," awarded **Santa Clara University School of Engineering Kuehler Undergraduate Research Grant**, US$2,420, performance period: Summer 2010.

12. Nam Ling, "Predictive and Decoder-Derived Video Coding Model," awarded **Huawei Technologies grant**, US$70,000, performance period: July 1, 2009 – June 30, 2010.

13. Nam Ling, "A Statistical Motion Vector Coding Model," awarded **Huawei Technologies grant**, US$70,000, performance period: August 16, 2007 – August 15, 2008.

14. Nam Ling, "H.264 Video Post-Processing and Artifacts Reduction," awarded **Santa Clara University School of Engineering Research Grant**, US$15,504, performance period: September 5, 2006 – December 31, 2007.

15. Nam Ling, "Streaming MPEG-4 FGS Video over the Internet," awarded **Santa Clara University School of Engineering Research Grant**, US$12,000, performance period: June 19, 2002 – June 18, 2003.

16. Nam Ling, "VLSI Design of an MPEG-2 Decoder," awarded **Santa Clara University School of Engineering Internal Grant**, US$10,803, performance period: June 19, 2000 – June 18, 2001.

17. Nam Ling, awarded **Broadband Networks Corporation research donation**, US$55,092 (in new equipment), for research in areas of MPEG and DTV technology, networked video, and interactive multimedia, performance period: starting May 25, 2000.

18. Nam Ling (Primary PI) and Hans-Peter Dommel (Co-PI), "Transmission of HDTV Streams over IP Networks," awarded **Research grant from Nortel Networks**, US$20,000, performance period: February 1, 2000 – November 1, 2000.

19. Nam Ling, "Memory Subsystem for HDTV Decoding," awarded **NJR Corporation (New Japan Radio) grant for joint research**, US$55,200, performance period: August 1, 1997 – February 1, 1999.

20. Nam Ling, "MPEG-2 and MPEG-4 Video," awarded **Medianix Semiconductor, Inc. grant for joint research**, US$50,000, performance period: July 1, 1997 – June 30, 1998.

21. Nam Ling, "MPEG Video Compression," awarded **NJR Corporation (New Japan Radio) grant for joint research**, US$56,700 (US$20,000 received in October 1995, US$36,700 received in April 1996), performance period: October 1, 1995 - March 31, 1997.

22. Nam Ling, "An Application Framework for Distributed Computing Environment," awarded **Santa Clara University IBM Research Grant**, US$5,000, performance period: May 1, 1993 - February 10, 1995.

23. Nam Ling, "A Formal Verifier for Systolic Array Designs," awarded **Santa Clara University Arthur Vining Davis Junior Faculty Fellowship**, US$10,700 (including a funding of US$3,500 and the release from all other University responsibilities during Fall 1991), performance period: July 1, 1991 - September 30, 1992.

24. Nam Ling, "RIA: Formal Specification and Verification of Systolic Arrays," awarded **National Science Foundation (NSF) Research Initiation Award**, Grant No. MIP-9010385, US$59,938, performance period: July 1, 1990 - June 30, 1993.

25. Nam Ling, "Automatic Formal Verification of Systolic Arrays," awarded **Santa Clara University IBM Faculty Research Grant**, US$3,818, performance period: May 7, 1990 - June 30, 1991.

**(2) TEACHING GRANTS:**

26. Nam Ling and Weijia Shang, "Video Processing Project for Undergraduates," awarded **Santa Clara University Funds for Technology Innovation**, US$9,502, performance period: February 15, 2010 – May 15, 2010.

27. Nam Ling and Weijia Shang, "A New Computer Hardware Design Methodology for Undergraduates," awarded **Santa Clara University IBM Faculty Teaching Grant**, US$6,000, performance period: April 19, 1996 – December 31, 1997.

**(3) OTHER INFO:**

Nominated by Santa Clara University for **National Science Foundation (NSF) Young Investigator (NYI)** award, January 28, 1993.


**TEACHING, COURSE DEVELOPMENT, AND RESEARCH SUPERVISING EXPERIENCE**

**(1) COURSES TAUGHT:**

Different Graduate Level Courses Taught (1990 - present):
1. Multimedia Data Compression I: Image and Video.
2. Multimedia Data Compression II: Audio and Speech.
3. Advanced Techniques in Video Coding.
4. Digital TV.
5. Application-Specific Array Processors.
6. Parallel Computation Systems I.
7. Parallel Computation Systems II.
8. Computer Architecture.

Different Undergraduate Level Courses Taught (1989 - present):
9. Multimedia Data Compression (Senior Level Current Topics).

10. Computer Architecture (Senior Level).
11. Introduction to Microprocessors (Senior/Junior Level).
12. Digital System Design and Analysis / Logic Design (Junior/Sophomore Level).
13. Machine Organization and Programming (Sophomore Level).
14. Introduction to Digital Hardware (Freshmen/Sophomore Level).

<u>Note</u>: Most of the above courses were taught multiple times. Course materials were revised yearly to include state-of-the-art topics.

Courses Taught Prior to 1989:
- Digital Systems (Junior Level), Spring 1986.
- Computer Engineering (Freshmen Level), Spring 1986.

## (2) CURRICULUM AND LABORATORY DEVELOPMENT:

1. Worked with Electrical Engineering Department to revise circuit course sequence to enable the inclusion of principles of programming languages as a required course for B.S. in Computer Science & Engineering, 2011.
2. Created graduate courses in intellectual property issues, global issues, and multicultural and gender issues, for the School of Engineering, 2002 - 2007.
3. Created a new area of specialization (Bioinformatics) and the corresponding graduate courses in the School of Engineering, 2004.
4. Created and developed the Bioinformatics track for track-based M.S. curriculum in Computer Engineering, 2004.
5. Participated as a member of the committee that developed a track-based M.S. curriculum in Computer Engineering; innovated and developed the Multimedia Processing track and the Computer Architecture and Systems track, 2000-01.
6. Jointly developed a hardware description language based design lab for computer architecture course, 1997 – 98.
7. Led a committee that developed the curriculum requirement for Advanced Studies in High-Performance Computing certificate program, 1994 - 95.
8. Jointly developed the new curriculum requirements for M.S. in Computer Engineering, 1993 - 94.
9. Involved in the Computer Engineering undergraduate curriculum revision, 1993 - 94.
10. Involved in the development of Digital Systems Laboratory for undergraduate instruction and in the structuring of undergraduate digital hardware courses and curriculum, 1990 - 2002.

Courses Created, Developed, and Taught:
11. Advanced Techniques in Video Coding (Graduate Level Course), beginning 2006.
12. Digital TV (Graduate Level Course under Advanced Topics in Computer Engineering), 2000.
13. Multimedia Data Compression II: Audio and Speech (Graduate Level Course), beginning 1996.
14. Multimedia Data Compression I: Image and Video (Graduate Level Course), beginning 1995.
15. Introduction to Digital Hardware (Freshmen/Sophomore Level) course and lab, beginning 1995.
16. Application-Specific Array Processors (Graduate Level Course), beginning 1990.

Laboratory Development:
17. Established and developed the Multimedia Compression Lab., 1997 – present.
18. Jointly developed the High Performance Computing Lab. (also known as Computer Systems and Parallel Processing Research Lab.), 1993 - 1996.

## (3) SERVED AS DISSERTATION/THESIS/INDEPENDENT STUDY ADVISORS FOR:

- About 22 Ph.D. students, one Engineer's degree student, and more than 70 M.S. students, 1990 – present. (Also served as advisors for many undergraduate students in their senior design projects and undergrad research: Several teams won School level awards; one was selected Honorable Mention in Computing Research Association's Outstanding Undergraduate Researcher Award; some published papers in top conferences.)

- Ph.D. students graduated:
  o Jun Zhang, dissertation title: "Context Adaptive Rate-Distortion Optimization in Video Coding," graduated June 2010.
  o Maria Pantoja, dissertation title: "An Efficient IPB-Picture Transcoder with Joint Pixel and Transform Domain Processing," graduated September 2009.
  o Fengling Li, dissertation title: "Improved Motion-Compensated Temporal Filtering (MCTF) for Scalable Video Coding," graduated December 2006.

- o Minqiang Jiang, dissertation title: "Adaptive Rate Control for Advanced Video Coding," graduated March 2006.
- o Xiaoquan Yi, dissertation title: "Simplified and Fast Full-Pel and Sub-Pel Motion Estimation for Video Coding," graduated December 2005.
- o Nien-Tsu Wang, dissertation title: "Processing and Storage Models for MPEG-2 Main Level and High Level Video Decoding – A Block-Level Pipeline Approach," graduated March 2004.
- o Gunnar Hovden, dissertation title: "Generation of Optimized Facial Animation Parameters," graduated December 2003.

**(4) SERVED AS SUPERVISORS FOR:**

- About 10 Research Assistants (graduate students), 1990 – present.

- Full-time researchers (salary paid by Santa Clara University School of Engineering or Ling's grants):
  - o Zhouye Gu, Postdoctoral Research Fellow, term: November 1, 2013 – October 31, 2014.
  - o Zhouye Gu, Visiting Research Scholar, term: November 1, 2012 – October 31, 2013.
  - o Li Song, Visiting Associate Professor, term: October 1, 2011 – September 30, 2012.

- Served as hosts to several visiting faculty (from other universities), 1990 – present.

## PROFESSIONAL ACTIVITIES AND UNIVERSITY COMMITTEES

### (1) MAJOR PROFESSIONAL LEADERSHIP POSITIONS:

1. **General Co-Chair**, 2nd International Workshop on Video Coding and Video Processing (VCVP), Shenzhen, China, January 21 – 23, 2014.

2. **Technical Program Co-Chair**, 2013 IEEE Visual Communications and Image Processing Conference (VCIP), Kuching, Sarawak, Malaysia, November 17 - 20, 2013.

3. **General Chair**, 2013 IEEE International Conference on Multimedia and Expo (ICME), San Jose, California, USA, July 15 – 19, 2013. (ICME is the flagship conference on multimedia research for the IEEE and is sponsored by four of the largest IEEE societies – Computer, Communications, Signal Processing, and Circuits and Systems.)

4. **Technical Program Co-Chair**, 2010 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC), Singapore, December 14 – 17, 2010.

5. **Technical Program Co-Chair**, 2010 IEEE Asia Pacific Conference on Circuits and Systems (APCCAS), Kuala Lumpur, Malaysia, December 6 – 9, 2010.

6. **General Co-Chair**, 1st International Workshop on Video Coding and Video Processing (VCVP), Shenzhen, China, November 26 - 28, 2008.

7. **Technical Committee Chair**, IEEE Circuits and Systems Society Circuits and Systems for Communications Technical Committee, May 2006 – May 2008. (Technical Committee Chair-Elect during May 2005 – May 2006).

8. **Technical Program Co-Chair**, 2007 IEEE International Symposium on Circuits and Systems (ISCAS), New Orleans, Louisiana, U.S.A, May 27 – 30, 2007. (ISCAS is the flagship conference of the IEEE Circuits and Systems Society, ISCAS 2007 has 1,826 papers submitted and an attendance of about 1,300.)

9. **Program Co-Chair**, 2007 IEEE Workshop on Signal Processing Systems (SiPS), Shanghai, China, October 17 – 19, 2007.

10. **Track Co-Chair (Track on Circuits and Systems for Communications)**, **Technical Program Committee**, 2006 IEEE International Symposium on Circuits and Systems (ISCAS), Island of Kos, Greece, May 21 – 24, 2006.

11. **Track Co-Chair (Track on Circuits and Systems for Communications)**, **Technical Program Committee**, 2005 IEEE International Symposium on Circuits and Systems (ISCAS), Kobe, Japan, May 23 – 26, 2005.

12. **Track Co-Chair (Track on Circuits and Systems for Communications)**, **Technical Program Committee**, 2004 IEEE International Symposium on Circuits and Systems (ISCAS), Vancouver, Canada, May 23 - 26, 2004.

13. **Program Chair**, Third International Workshop on Digital and Computational Video (DCV), Clearwater Beach, Florida, USA, November 14-15, 2002.

14. **Program Co-Chair**, 2000 IEEE Workshop on Signal Processing Systems (SiPS), Lafayette, Louisiana, USA, October 11-13, 2000.

15. **General Chair**, IEEE Hot Chips Symposium VII, Stanford University, Stanford, California, USA, August 13-15, 1995. (Hot Chips VII has a total attendance of about 1,000 and reported by media such as World Journal, EE Times, and San Jose Mercury News.)

16. **Chair**, IEEE Computer Society Technical Committee on Microprocessors and Microcomputers, 1993 - 1995.

17. **Vice Chair**, IEEE Hot Chips Symposium VI, Stanford University, Stanford, California, USA, August 14-16, 1994.

**(2) EDITORSHIPS IN MAJOR JOURNALS:**

18. **Guest Co-Editor**, IEEE Journal of Selected Topics in Signal Processing (Special Issue on Video Coding: HEVC and Beyond), publication expected 2013.

19. **Associate Editor**, Multidimensional Systems and Signal Processing: An International Journal (MSSP), Springer, 2012 – 2015.

20. **Guest Co-Editor,** Journal of Signal Processing Systems for Signal, Image, and Video Technology (Special Issue: SoC for Multimedia Networking), Vol. 60, No. 3, Springer, September 2010. (Online version published May 2009).

21. **Editor of the Editorial Board**, Journal of Internet Technology, 2004 – 2009, 2011 - present.

22. **Member of the Editorial Board**, International Journal of Internet Protocol Technology, Inderscience Publishers, 2005 – 2008.

23. **Guest Co-Editor,** Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology (Special Issue on Digital and Computational video), Vol. 42, No. 1, Springer, January 2006.

24. **Associate Editor** (Signal Processing and Multimedia), IEEE Transactions on Circuits and Systems – I: Fundamental Theory and Applications, January 2002 – December 2003.

**(3) DISTINGUISHED LECTURER POSITIONS:**

25. **IEEE Distinguished Lecturer** (IEEE Circuits and Systems Society), January 2007 – December 2008.

26. **IEEE Distinguished Lecturer** (IEEE Circuits and Systems Society), January 2002 – December 2003.

**(4) POSITIONS IN CONFERENCE STEERING, ORGANIZING, AND PROGRAM COMMITTEES:**

27. **Technical Committee Representative to the ICME Steering Committee** - representative of the IEEE Circuits and Systems Society Multimedia Systems and Applications Technical Committee to the IEEE International Conference on Multimedia and Expo (ICME) Steering Committee, term: January 1, 2014 – December 31, 2015.

28. **America Liaison**, 2014 IEEE International Workshop on Multimedia Signal Processing (MMSP), Jakarta, Indonesia, September 22 – 24, 2014.

29. **International Advisory Committee Member**, The 9th IEEE Conference on Industrial Electronics and Applications (ICIEA), Hangzhou, China, June 9 – 11, 2014.

30. **International Advisory Committee Member**, The 9th International Conference on Information, Communications and Signal Processing (ICICS), Tainan, Taiwan, December 10 – 13, 2013.

31. **International Advisory Committee Member**, The 8th IEEE Conference on Industrial Electronics and Applications (ICIEA), Melbourne, Australia, June 19 – 21, 2013.

32. **International Advisory Committee Member**, The 7th IEEE Conference on Industrial Electronics and Applications (ICIEA), Singapore, July 18 - 20, 2012.

33. **Best Paper Award Committee Member**, The 7th IEEE Conference on Industrial Electronics and Applications (ICIEA), Singapore, July 18 - 20, 2012.

34. **Tutorial Co-Chair**, 2012 IEEE International Symposium on Circuits and Systems (ISCAS), Seoul, South Korea, May 20 – 23, 2012.

35. **Technical Program Committee Member,** IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, Nevada, USA, January 12 - 15, 2012.

36. **Technical Program Committee Member,** 2011 International Conference on Advanced Intelligence and Awareness Internet (AIAI), Shenzhen, China, October 28 -30, 2011.

37. **Technical Program Committee Member,** IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, Nevada, USA, January 9 - 12, 2011.

38. **Technical Program Committee Member**, 2010 IEEE Workshop on Signal Processing Systems (SiPS), San Francisco Bay Area, California, USA, October 6 – 8, 2010.

39. **Technical Program Committee Member,** 2010 IEEE International Conference on Multimedia and Expo (ICME), Singapore, July 19 – 23, 2010.

40. **Technical Program Committee Member,** SPIE Visual Communications and Image Processing 2010 (VCIP), Huang Shan, China, July 11 – 14, 2010.

41. **International Advisory Committee Member**, The 5th IEEE Conference on Industrial Electronics and Applications (ICIEA), Taichung, Taiwan, June 15 – 17, 2010.

42. **Technical Program Committee Member,** IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, Nevada, USA, January 9 - 13, 2010.

43. **Organizing Committee Member (Registration),** 2009 IEEE International Conference on Image Processing (ICIP), Cairo, Egypt, November 7 – 11, 2009.

44. **Technical Program Committee Member**, 2009 IEEE Workshop on Signal Processing Systems (SiPS), Tampere, Finland, October 7 - 9, 2009.

45. **Technical Program Committee Member,** IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, Nevada, USA, January 10 - 14, 2009.

46. **Steering Committee Member**, IEEE International Symposium on Circuits and Systems (ISCAS), 2008.

47. **Technical Program Committee Member,** 1st International Workshop on Video Coding and Video Processing (VCVP), Shenzhen, China, November 26 - 28, 2008.

48. **Technical Program Committee Member**, 2008 IEEE Workshop on Signal Processing Systems (SiPS), Washington, D.C., USA, October 8 - 10, 2008.

49. **Technical Program Committee Member,** IEEE International Conference on Circuits and Systems for Communications (ICCSC), Shanghai, China, May 26 - 28, 2008.

50. **Review Committee Member**, 2008 IEEE International Symposium on Circuits and Systems (ISCAS), Seattle, Washington, USA, May 18 - 21, 2008.

51. **Technical Program Committee Member,** IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, Nevada, USA, January 9 - 13, 2008.

52. **Technical Program Committee Member,** Multimedia Compression and Optimization Track, Pacific-Rim Conference on Multimedia (PCM), Hong Kong, China, December 11 – 14, 2007.

53. **Technical Program Committee Member,** IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, Nevada, USA, January 10 - 14, 2007.

54. **Technical Program Committee Member**, 2006 IEEE Workshop on Signal Processing Systems (SiPS), Banff, Alberta, Canada, October 2 – 4, 2006.

55. **Technical Program Committee Member** and **Review Committee Member**, 2006 IEEE International Symposium on Circuits and Systems (ISCAS), Island of Kos, Greece, May 21 – 24, 2006.

56. **Program Committee Member,** Picture Coding Symposium 2006 (PCS), Beijing, China, April 24 – 26, 2006.

57. **Technical Program Committee Member,** IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, Nevada, USA, January 9 - 11, 2006.

58. **Technical Program Committee Member,** 2005 International Symposium on Intelligent Signal Processing and Communications Systems, Hong Kong, China, December 13 – 16, 2005.

59. **International Program Committee Member**, Fifth International Conference on Information, Communications and Signal Processing, Bangkok, Thailand, December 6 – 9, 2005.

60. **Technical Program Committee Member**, 2005 IEEE Workshop on Signal Processing Systems (SiPS), Athens, Greece, November 2 – 4, 2005.

61. **Technical Program Committee Member** and **Review Committee Member**, 2005 IEEE International Symposium on Circuits and Systems (ISCAS), Kobe, Japan, May 23 - 26, 2005.

62. **Technical Program Committee Member**, 2004 IEEE Workshop on Signal Processing Systems (SiPS), Austin, Texas, U.S.A, October 13 – 15, 2004.

63. **Technical Program Committee Member** and **Review Committee Member**, 2004 IEEE International Symposium on Circuits and Systems (ISCAS), Vancouver, Canada, May 23 - 26, 2004.

64. **Program Committee Member**, 2003 IEEE Workshop on Signal Processing Systems (SiPS), Seoul, Korea, August 27 - 29, 2003.

65. **Review Committee Member**, 2003 IEEE International Symposium on Circuits and Systems (ISCAS), Bangkok, Thailand, May 25 - 28, 2003.

66. **Publication Co-Chair**, Workshop and Exhibition on MPEG-4, San Jose, California, USA, June 25 - 27, 2002.

67. **Technical Program Committee Member**, 2002 IEEE International Symposium on Circuits and Systems (ISCAS), Scottsdale, Arizona, USA, May 26-29, 2002.

68. **International Program Committee Member**, Third International Conference on Information, Communications and Signal Processing, Singapore, October 15 – 18, 2001.

69. **Program Committee Member**, 2001 IEEE Workshop on Signal Processing Systems (SiPS), Antwerp, Belgium, September 26-28, 2001.

70. **Publication Co-Chair**, Workshop and Exhibition on MPEG-4, San Jose, California, USA, June 18 – 20, 2001.

71. **Technical Program Committee Member**, 2001 IEEE International Symposium on Circuits and Systems (ISCAS), Sydney, Australia, May 6-9, 2001.

72. **Chair, Student Paper Contest Panel**, 2000 IEEE Workshop on Signal Processing Systems (SiPS), Lafayette, Louisiana, USA, October 11-13, 2000.

73. **Technical Program Committee Member**, 2000 IEEE International Symposium on Circuits and Systems (ISCAS), Geneva, Switzerland, May 28-31, 2000.

74. **Technical Program Committee Member**, 1999 IEEE International Symposium on Circuits and Systems (ISCAS), Orlando, Florida, USA, May 30 – June 2, 1999.

75. **Program Committee Member**, 8th Great Lakes Symposium on VLSI, Lafayette, Louisiana, USA, February 19-21, 1998.

76. **Member (at large)**, Organizing Committee, IEEE Hot Chips Symposium IX, Stanford University, Stanford, California, USA, August 24-26, 1997.

77. **Member (at large)**, Organizing Committee, IEEE Hot Chips Symposium VIII, Stanford University, Stanford, California, USA, August 18-20, 1996.

78. **Technical Program Committee Member**, 37th Midwest Symposium on Circuits and Systems, Lafayette, Louisiana, USA, August 3 -5, 1994.

79. **Publication Chair**, IEEE Hot Chips Symposium V, Stanford University, Stanford, California, USA, August 8-10, 1993.

80. **Digest Chair**, IEEE Hot Interconnects Symposium, Stanford University, Stanford, California, USA, August 5-7, 1993.

81. **Publication Chair**, IEEE Hot Chips Symposium IV, Stanford University, Stanford, California, USA, August 9-11, 1992.

82. **Publication Chair**, IEEE Hot Chips Symposium III, Stanford University, Stanford, California, USA, August 26-27, 1991.

83. **Registration Chair**, IEEE Hot Chips Symposium II, Santa Clara University, Santa Clara, California, USA, August 20-21, 1990.

**(5) CHAIRMANSHIPS IN CONFERENCE SESSIONS AND ORGANIZERS OF SPECIAL SESSIONS:**

84. **Keynote Session Chair**, Keynote Speech entitled "Advances of Media Technology in Modern Computing," 2013 IEEE International Conference on Multimedia and Expo (ICME), San Jose, California, U.S.A, July 15 – 19, 2013.

85. **Session Chair**, Session on "High Efficiency Video Coding (I)," 2012 IEEE Visual Communications and Image Processing Conference (VCIP), San Diego, California, U.S.A, November 27 – 30, 2012.

86. **Keynote Session Chair**, Keynote Speech entitled "Robots and the Human," 2010 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC), Singapore, December 14 – 17, 2010.

87. **Keynote Sessions Chair**, all Keynote Speeches for Day 1, 2010 IEEE Asia Pacific Conference on Circuits and Systems (APCCAS), Kuala Lumpur, Malaysia, December 6 – 9, 2010.

88. **Session Co-Chair**, Session on "Visual Signal Coding and Communications," 2010 IEEE International Symposium on Circuits and Systems (ISCAS), Paris, France, May 30 – June 2, 2010.

89. **Session Chair**, Session on "Transcoding," 2009 IEEE International Conference on Image Processing (ICIP), Cairo, Egypt, November 7 – 11, 2009.

90. **Session Chair**, Session on "DSP Implementations I," 2009 IEEE Workshop on Signal Processing Systems (SiPS), Tampere, Finland, October 7 - 9, 2009.

91. **Session Chair**, Session on "Advanced Video Compression & Processing Techniques," 2008 IEEE Asia Pacific Conference on Circuits and Systems (APCCAS), Macao, China, November 30 – December 3, 2008.

92. **Keynote Session Chair**, Keynote Speech entitled "Video Compression and the New World of Digital Television," 1st International Workshop on Video Coding and Video Processing (VCVP), Shenzhen, China, November 26 – 28, 2008.

93. **Session Chair**, All Sessions in Day 2 of the Workshop, 1st International Workshop on Video Coding and Video Processing (VCVP), Shenzhen, China, November 26 – 28, 2008.

94. **Session Co-Chair**, Session on "Wireless Communications Systems," 2008 IEEE International Symposium on Circuits and Systems (ISCAS), Seattle, Washington, USA, May 18 - 21, 2008.

95. **Session Co-Chair**, Session on "Encoder Optimization," 2008 IEEE International Symposium on Circuits and Systems (ISCAS), Seattle, Washington, USA, May 18 - 21, 2008.

96. **Keynote Session Chair**, Keynote Speech entitled "Wireless Sensors Networks & DSP: Marriage Made in Heaven," 2007 IEEE Workshop on Signal Processing Systems (SiPS), Shanghai, China, October 17 – 19, 2007.

97. **Keynote Session Chair**, Keynote Speech entitled "Si Technology Roadmap for Ubiquitous Computing, Sensing, and Perception," 2007 IEEE International Symposium on Circuits and Systems (ISCAS), New Orleans, Louisiana, U.S.A, May 27 – 30, 2007.

98. **Session Co-Chair**, Session on "MIMO Systems," 2007 IEEE International Symposium on Circuits and Systems (ISCAS), New Orleans, Louisiana, U.S.A, May 27 – 30, 2007.

99. **Session Chair**, Session on "Coding and Compression," 2006 IEEE Workshop on Signal Processing Systems (SiPS), Banff, Alberta, Canada, October 2 – 4, 2006.

100. **Session Co-Chair**, Session on "Motion Estimation II," 2006 IEEE International Symposium on Circuits and Systems (ISCAS), Island of Kos, Greece, May 21 – 24, 2006.

101. **Session Co-Chair**, Session on "Moving Picture Coding," Picture Coding Symposium 2006 (PCS), Beijing, China, April 24 – 26, 2006.

102. **Session Chair**, Session on "Mobile Multimedia," IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, Nevada, USA, January 9 - 11, 2006.

103. **Session Co-Chair**, Session on "H.264 Encoding," IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, Nevada, USA, January 9 - 11, 2006.

104. **Session Chair**, Session on "Video Coding," 2005 IEEE Workshop on Signal Processing Systems (SiPS), Athens, Greece, November 2 – 4, 2005.

105. **Session Organizer and Session Chair**, Special Session on "Advances in Scalable Video Coding," Visual Communications and Image Processing 2005 (VCIP), Beijing, China, July 12 – 15, 2005.

106. **Session Co-Chair**, Session on "Efficient Implementation of AVC/H.264," 2005 IEEE International Symposium on Circuits and Systems (ISCAS'2005), Kobe, Japan, May 23 - 26, 2005.

107. **Session Co-Chair**, Session on "Communication Circuits & Systems I," 2005 IEEE International Symposium on Circuits and Systems (ISCAS'2005), Kobe, Japan, May 23 - 26, 2005.

108. **Session Chair**, Session on "JPEG2000 Implementations," 2005 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Philadelphia, Pennsylvania, USA, March 18 – 23, 2005.

109. **Session Chair**, Session on "Architectures for Source and Channel Coding," 2004 IEEE Workshop on Signal Processing Systems (SiPS), Austin, Texas, USA, October 13 – 15, 2004.

110. **Session Chair**, Session on "Advanced Video Coding Techniques for HDTV and Video Applications (I)," 2004 IEEE International Conference on Multimedia and Expo (ICME 2004), Taipei, Taiwan, June 27 - 30, 2004.

111. **Session Chair**, Session on "Receivers Architecture and Design," 2004 IEEE International Symposium on Circuits and Systems (ISCAS'2004), Vancouver, Canada, May 23 - 26, 2004.

112. **Session Co-Chair**, Session on "Image and Video Compression," 2004 IEEE International Symposium on Circuits and Systems (ISCAS'2004), Vancouver, Canada, May 23 - 26, 2004.

113. **Session Co-Chair**, Session on "3-D and Image Processing," 2004 IEEE International Symposium on Circuits and Systems (ISCAS'2004), Vancouver, Canada, May 23 - 26, 2004.

114. **Session Chair**, Session on "Video Architectures," 2003 IEEE Workshop on Signal Processing Systems (SiPS), Seoul, Korea, August 27 - 29, 2003.

115. **Session Chair**, Session on "Video Computation Algorithms," Third International Workshop on Digital and Computational Video (DCV'2002), Clearwater Beach, Florida, USA, November 14-15, 2002.

116. **Session Chair**, Session on "Video," Workshop and Exhibition on MPEG-4 (WEMP4'2002), San Jose, California, USA, June 25 - 27, 2002.

117. **Session Chair**, Session on "Video Segmentation," 2002 IEEE International Symposium on Circuits and Systems (ISCAS'2002), Scottsdale, Arizona, USA, May 26-29, 2002.

118. **Session Chair**, Session on "Communication Circuits / Implementation," 2002 IEEE International Symposium on Circuits and Systems (ISCAS'2002), Scottsdale, Arizona, USA, May 26-29, 2002.

119. **Session Chair**, Session on "Video Codecs," 2001 IEEE Workshop on Signal Processing Systems (SiPS), Antwerp, Belgium, September 26-28, 2001.

120. **Session Chair**, Session on "Decoder Algorithms and Architectures," 2001 IEEE International Symposium on Circuits and Systems (ISCAS'2001), Sydney, Australia, May 6-9, 2001.

121. **Session Chair**, Session on "Student Paper Contest," 2000 IEEE Workshop on Signal Processing Systems (SiPS), Lafayette, Louisiana, USA, October 11-13, 2000.

122. **Session Chair**, Session on "Communication Systems and Circuits," 2000 IEEE International Symposium on Circuits and Systems (ISCAS'2000), Geneva, Switzerland, May 28-31, 2000.

123. **Session Chair**, Session on "VLSI Testing – I," 1999 IEEE International Symposium on Circuits and Systems (ISCAS'99), Orlando, Florida, USA, May 30 – June 2, 1999.

124. **Session Chair**, Session on "Novel and Emerging Circuits," 8th Great Lakes Symposium on VLSI, Lafayette, Louisiana, USA, February 19-21, 1998.

125. **Session Organizer and Session Chair**, Special Session on "Multimedia Architectures," 37th Midwest Symposium on Circuits and Systems, Lafayette, Louisiana, USA, August 3 -5, 1994.

126. **Session Chair**, Session on "VLSI Signal and Image Processing Architectures," 1993 IEEE International Symposium on Circuits and Systems (ISCAS'93), Chicago, Illinois, USA, May 3-6, 1993.

127. **Session Chair**, Session on "VLSI Design and Applications I," 1992 IEEE International Symposium on Circuits and Systems (ISCAS'92), San Diego, California, USA, May 10-13, 1992.

128. **Session Chair**, Session on "VLSI Design and Circuit Layout," 1990 IEEE International Symposium on Circuits and Systems (ISCAS'90), New Orleans, Louisiana, USA, May 1-3, 1990.

**(6) COMMITTEE MEMBERSHIP POSITIONS IN SOCIETY TECHNICAL COMMITTEES:**

129. **Member of Advisory Board**, IEEE Signal Processing Society Design and Implementation of Signal Processing Systems Technical Committee, 2011 – present.

130. **Committee Member**, IEEE Circuits and Systems Society Multimedia Systems and Applications Technical Committee, May 2008 – present.

131. **Emeritus Member**, IEEE Circuits and Systems Society VLSI Systems and Applications Technical Committee, 2005 – present.

132. **Committee Member**, IEEE Circuits and Systems Society Circuits and Systems for Communications Technical Committee, May 2004 – present.

133. **Committee Member**, IEEE Circuits and Systems Society Technical Committee on Visual Signal Processing and Communications, 1999 – present.

134. **Committee Member**, IEEE Signal Processing Society Design and Implementation of Signal Processing Systems Technical Committee, 2004 - 2010.

135. **Committee Member**, IEEE Computer Society Technical Committee on Microprocessors and Microcomputers, 1992 - 1997.

136. **Committee Member**, IEEE Circuits and Systems Society VLSI Systems and Applications Technical Committee, 1990 – 2005.

## (7) OTHER PROFESSIONAL SERVICE (AND SOME COMMUNITY SERVICE):

137. **External Examiner** (for doctoral student theses and dissertations), School of EEE, Nanyang Technological University, Singapore, 2011 and 2012.

138. **External Referee** (assessing faculty tenure and promotion), School of Computer Engineering, Nanyang Technological University, Singapore, 2012.

139. **External Referee** (assessing faculty tenure and promotion), School of EEE, Nanyang Technological University, Singapore, 2008, 2010, 2011.

140. **External Referee** (evaluating faculty tenure and promotion), Department of Electrical and Computer Engineering, Lehigh University, Bethlehem, Pennsylvania, USA, 2010.

141. **Member**, Integrated Undergraduate Engineering Advisory Committee, University of Hawaii at Hilo, Hilo, Hawaii, USA, September 2009 – 2010.

142. **External Referee** (evaluating faculty promotion), Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, Minnesota, USA, 2009.

143. **Judge**, The 15th Annual Outstanding Chinese Media Awards, North California Chinese Media Association (NCCMA), California, USA, 2009.

144. **External Examiner**, Department of Computer Science & Engineering, the Hong Kong University of Science and Technology, Hong Kong, China, 2009.

145. **External Assessor** (assessing faculty tenure), School of EEE, Nanyang Technological University, Singapore, 2007.

146. **Member**, Board of Directors, Chinese Institute of Engineers (San Francisco Bay Area Chapter), USA, February 2004 – March 2006.

147. Contributed to the 4th Industrial Technology Research Institute (ITRI) (Taiwan) Elite Researchers Program: "Meet the Best Minds," May 2005.

148. **External Examiner** (for graduate student theses and dissertations), School of EEE, Nanyang Technological University, Singapore, 2000 – 2001, 2004 - 2005.

**149. External Examiner** (for graduate student theses and dissertations), Faculty of Engineering, Multimedia University, Malaysia, 2002 – 2003.

**150. Member**, Singapore Digital TV Technical Committee, Singapore, March 1998 – August 1998.

**151. Reviewers for proposals**
- Singapore Ministry of Education (MOE) Academic Research Fund (2008).
- Board of Regents (State of Louisiana, U.S.) Support Fund R & D Program (2003).
- King Fahd University of Petroleum and Minerals (Saudi Arabia) (1998).
- National Science Foundation (U.S.) (1991).

**152. Reviewers for journals**
- Multidimensional Systems and Signal Processing: An International Journal (Springer) (2012).
- IET Image Processing (2009).
- Signal Processing: Image Communication (Elsevier Science) (2006).
- IEE Proceedings Vision, Image & Signal Processing (2005).
- Journal of Visual Communication and Image Representation (Elsevier Science) (2005).
- Computers & Electrical Engineering: An International Journal (2005).
- IEEE Transactions on Circuits and Systems – I: Fundamental Theory and Applications (2002, 2003, 2004).
- ETRI (Electronics and Telecommunications Research Institute, Korea) Journal (2003).
- EURASIP Journal of Applied Signal Processing (2002, 2006, 2007).
- IEEE Transactions on Circuits and Systems for Video Technology (2002, 2005, 2011).
- IEEE Transactions on Multimedia (2000, 2004).
- IEEE Transactions on Signal Processing (1998, 2000-01).
- IEEE Micro Magazine (1995).
- Journal of VLSI Signal Processing Systems (1993, 2001, 2003).
- IEEE Computer Magazine (1991, 1992, 1993).
- Journal of Circuits, Systems and Computers (1992).
- Electronics Letters (1991).

and more.

**153. Reviewers for conferences**
- IEEE Latin American Symposium on Circuits and Systems (2013).
- IEEE International Conference on Image Processing (2009, 2012).
- IEEE International Conference on Multimedia and Expo (2010).
- IEEE Asia Pacific Conference on Circuits and Systems (1992, 2010).
- Picture Coding Symposium (PCS) (2006).
- Visual Communications and Image Processing (VCIP) (2005, 2010).
- IEEE International Conference on Consumer Electronics (2006, 2010, 2011).
- IEEE Workshop on Signal Processing Systems (2000, 2001, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010).
- IEEE International Symposium on Circuits and Systems (1991, 1992, 1993, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2008, 2010).
- IEEE International Conference on Acoustics, Speech, and Signal Processing (2005, 2006, 2007, 2008, 2009, 2010).
- Third International Workshop on Digital and Computational Video (2002).
- IEEE Workshop and Exhibition on MPEG-4 (2001).
- Third International Conference on Information, Communications and Signal Processing (2001).
- $3^{rd}$ International Conference on Computational Intelligence and Multimedia Applications (1999).
- $8^{th}$ Great Lakes Symposium on VLSI (1998).
- 37th Midwest Symposium on Circuits and Systems (1994).
- 7th International Parallel Processing Symposium (1993).
- International Conference on Parallel Processing (1989, 1993).
- International Conference on Parallel and Distributed Systems (1992).
- Hawaii International Conference on System Sciences (1992).

and more.

## (8) MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS:

**154.Fellow,** The Institution of Engineering and Technology (IET), 2011 – present.

**155.Fellow**, The Institute of Electrical and Electronics Engineers, Inc. (IEEE), 2008 – present.

**156.Senior Member**, The Institute of Electrical and Electronics Engineers, Inc. (IEEE), 1999 – 2007.

**157.Member**, The Institute of Electrical and Electronics Engineers, Inc. (IEEE), 1990 - 1999.

**158.Professional Member,** American Society for Engineering Education (ASEE), 2002 – 2006.

**159.Member**, The International Society for Optical Engineering, (SPIE), 2004 – 2005.

**160.Professional Member**, The Association for Computing Machinery (ACM), 1990 - 2004.

**(9) SERVICE IN UNIVERSITY COMMITTEES:**

**161.Member,** Graduate Program Leadership Council, School of Engineering, Santa Clara University, 2007 – present.

**162.Affiliated Faculty and Advisor**, M.S. in Bioengineering Program, Santa Clara University, 2011 – present.

**163.Member**, School of Engineering Committee on Rank & Tenure Document Revision, Santa Clara University, Fall 2012.

**164.Member**, Special Taskforce on Patents and Inventions, Santa Clara University, 2008 – 2010.

**165.Member**, Faculty Development Advisory Council, Santa Clara University, 2007 – present.

**166.Member**, Search Committee for Tenure-Track Faculty in Computer Engineering, Department of Computer Engineering, Santa Clara University, 2010.

**167.Chair**, Search Committee for Academic Year Lecturer in Computer Engineering, Department of Computer Engineering, Santa Clara University, 2009.

**168.Member,** Steering Committee, Center for Nanostructure, Santa Clara University, 2003 - 2007.

**169.Committee Member,** Search Committee for the New Dean of the School of Engineering, Santa Clara University, 2001 – 2002.

**170.Member**, University Faculty Judicial Board, Santa Clara University, 2000 – 2001, 2006 – 2007.

**171.Committee Member**, School of Engineering Rank & Tenure Committee, Santa Clara University, 1996 – 1999, 2001 – 2002.

**172.Committee Member**, School of Engineering Dean's Evaluation Committee, Santa Clara University, 1999.

**173.Committee Member**, University Research Committee, Santa Clara University, 1994 – 1996, 2001 – 2004.

**174.Committee Member**, University Academic Integrity Committee, Santa Clara University, 1992 - 1994.

**175.Committee Member**, University Teaching and Learning Committee, Santa Clara University, 1990 - 1992.

**176.Advisor and co-founder**, Upsilon Pi Epsilon (Computing Sciences Honor Society) Santa Clara University Chapter, Chapter started 1990, served as advisor in 1990 - 1993.

Also served in several college and departmental level committees not listed here.


**VISITING AND CONSULTING POSITIONS**

1. Consulting Professor, NUS College in Silicon Valley (NCSV), National University of Singapore (NUS). Provided advice to NCSV, facilitated entrepreneurship education, advised and assessed NUS interns in Silicon Valley, September 1, 2002 – present.

2. Guest Professor of Shanghai Jiao Tong University, China, May 2006 – present. (The honor of Guest Professor is exclusively offered to the selective globally admired experts after the review of the academic committee of the University.)

3. Tsuiying Chair Professor of Lanzhou University, China, June 27, 2012 – present. (Tsuiying Chair Professorships are awarded by Lanzhou University to overseas professors with outstanding academic and scholarly qualifications upon reviewed by its academic committee.)

4. Consulting at Xilinx, San Jose, California, USA. Provided training on video technology for engineers, September 2009.

5. Visiting Researcher, Institute for Infocomm Research ($I^2R$), Singapore. Reviewed research activities, discussed collaborations, and delivered a seminar, January 21 – 25, 2008.

6. Invited Speaker / Visitor, Lee Center for Networking Research, Center for Telecommunications Research, and Dept. of Electronics Engineering, National Chiao Tung University, Taiwan, November 19 – 25, 2006.
   (Invited through sponsorship by Taiwan National Science Council and Lee Center; delivered nine talks at four major universities in Taiwan.)

7. Visiting Consultant, Center for Signal Processing, Nanyang Technological University, Singapore. Worked in the areas of scalable video coding and distributed video coding, June 27 – July 6 and July 17 – 26, 2005.

8. Visiting Scientist / Consultant, Institute for Infocomm Research, Singapore. Worked in the area of scalable video coding and gave seminars, February 3 – March 2, 2005.

9. Consulting at Center for Signal Processing, Nanyang Technological University, Singapore. Taught a short course on "Video & Image Compression: Principles & Standards (including MPEG-4 AVC / H.264)" for professionals from multi-national companies, government organizations, University, and research centers, July 12 - 15, 2004.

10. Special Invited Speaker / Distinguished Visiting Professor, Dept. of Electrical Engineering, National Dong Hwa University, Hualien, Taiwan, March 24 – 30, 2004.
    (Invited through a program sponsored by Taiwan Ministry of Education; delivered three talks.)

11. Visiting Scientist / Consultant, Institute for Infocomm Research, Singapore. Invited to give two presentations and to discuss collaborative work on multimedia signal processing, February 16 – 21, 2004.

12. Visiting Professor, Laboratories for Information Technology (now known as Institute for Infocomm Research), Singapore. Performed research & development on adaptive network environment for streaming of video, August 1 -31, 2002.

13. Consulting at Laboratories for Information Technology (now known as Institute for Infocomm Research), Singapore. Taught a short course on "MPEG & DTV" for professionals from multi-national companies, government organizations, University, and research centers, March 25 - 28, 2002.

14. Consulting at Center for Signal Processing, Nanyang Technological University, Singapore. Taught a short course on "MPEG & DTV" for professionals from multi-national companies, government organizations, University, and research centers, November 19 - 23, 2001.

15. Visiting Consultant, Center for Signal Processing, Nanyang Technological University, Singapore. Led a team of 5 research fellows and research engineers to work on a streaming video over IP project, July – September, 2001.

16. Consulting at Center for Signal Processing, Nanyang Technological University, Singapore. Taught a short course on "MPEG & DTV" for professionals from multi-national companies, government organizations, University, and research centers, February 19 - 23, 2001.

17. Consulting at Center for Signal Processing, Nanyang Technological University, Singapore. Taught a short course on "MPEG & DTV" for professionals from multi-national companies, government organizations, University, and research centers, November 20 - 24, 2000.

18. Consulting at Center for Signal Processing, Nanyang Technological University, Singapore. Taught a short course on "MPEG & DTV" for professionals from multi-national companies, government organizations, University, and research centers, February 28 – March 1, 2000.

19. Visiting Consultant, Center for Signal Processing, Nanyang Technological University, Singapore. Led a team of 9 research fellows and research engineers to work on a digital TV project, July – September, 1999.

20. Consulting at Center for Signal Processing, Nanyang Technological University, Singapore. Taught a short course on "MPEG & DTV" for professionals from multi-national companies, government organizations, University, and research centers, August 1999.

21. Consulting at Center for Signal Processing, Nanyang Technological University, Singapore. Taught a short course on MPEG video coding for professionals from multi-national companies, government organizations, University, and research centers, July 1998.

22. Consulting at Philips Semiconductors, Sunnyvale, California, USA. Provided MPEG compression training for engineers, 1995.

23. Consulting at LSI Logic Corporation, Milpitas, California, USA. Provided image and video compression training for digital video products engineers, 1994.


# INVITED COLLOQUIA/SEMINARS, KEYNOTE/DISTINGUISHED LECTURES, AND PANELS

**(1) Keynote Speeches, Key Panels, Conference Distinguished Invited Lectures**

1. **Keynote Speaker**, Keynote Speech: "Next Generation Video Coding – HEVC with a Special Look at Intra Prediction," IET International Conference on Ubi-media Computing and IET International Conference on Frontier Computing (IET U-media and IET FC), Xining, China, August 16 - 18, 2012.
2. **Keynote Speaker**, Keynote Speech: "High Efficiency Video Coding and its 3D Extension: A Research Perspective," 7th IEEE Conference on Industrial Electronics and Applications (ICIEA), Singapore, July 18 – 20, 2012.
3. **Keynote Speaker**, Keynote Speech: "Video Compression – A New Era," 3rd IEEE International Conference on Adaptive Science and Technology (ICAST), Abuja, Nigeria, November 24 - 26, 2011.
4. **Distinguished Invited Lecture Speaker**, Lecture Title: "Expectations and Challenges for Next Generation Video Compression," 5th IEEE Conference on Industrial Electronics and Applications (ICIEA), Taichung, Taiwan, June 15 – 17, 2010.
5. **Keynote Speaker**, Keynote Speech: "Video Coding Technology and Applications: What Have We Seen? What Will We See?" 2009 Joint Conferences on Pervasive Computing (JCPC), Tamsui, Taiwan, December 3 – 5, 2009.
6. **Keynote Speaker**, Keynote Speech: "Video Coding – A Look at Future Challenges," 2008 IEEE Asia Pacific Conference on Circuits and Systems (APCCAS), Macao, China, November 30 – December 3, 2008.
7. **Keynote Speaker**, Keynote Speech: "Future Challenges in Video Coding, with a Special Look at Motion Estimation," 1st International Workshop on Video Coding and Video Processing (VCVP), Shenzhen, China, November 26 - 28, 2008.
8. **Panelist,** Panel on "futuretech," and **Speaker,** "Video Coding Technology for Interactive Digital Media – A Vision," The NTU International Workshop on Interactive Digital Media Research, Singapore, April 28-30, 2008. (Invited by the Provost of Nanyang Technological University (NTU), Singapore; this is the inaugural workshop for the NTU Institute for Media Innovation and is of national significance to Singapore.)
9. **Panelist**, Panel on "Technology Trends, New Applications, and Business Opportunities in New Digital Home," U.S. Taiwan High-tech Forum (UTHF), Santa Clara, California, U.S.A, September 11, 2004. **Speaker**, "Technology Trend on Video Coding and Streaming and its Application in Industry," UTHF Pre-Conference Workshop, Saratoga, California, U.S.A, September 10, 2004.
(Invited by the North America Taiwanese Engineers' Association.)

**(2) IEEE Distinguished Lectures (Delivered as IEEE Distinguished Lecturer)**

Lecture Title for 2007-2008 IEEE Distinguished Lectures (Circuits and Systems) – "Simplified Fast Motion Estimation: Simplified and Unified Multi-Hexagon Search (SUMH) with Context Adaptive Lagrange Multiplier (CALM)."

Lecture Title for 2002-2003 IEEE Distinguished Lectures (Circuits and Systems) – Lecture 1: "A Real-time MPEG-4 Binary Shape Decoder." Lecture 2: "A Real-time Video Decoder for Digital HDTV."

10. COPPE (Electrical Engineering), Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil, September 12, 2008.
    (Invited by the IEEE Circuits and Systems (CAS) Society Rio de Janeiro Chapter.)
11. Faculty of Engineering, Universiti Putra Malaysia (UPM), Serdang, Malaysia, July 22, 2008.
    (Invited by IEEE CAS Society Malaysia Chapter.)
12. Institute for Infocomm Research, Singapore, July 4, 2008.
    (Invited by IEEE CAS Society Singapore Chapter.)
13. Electrical Engineering Department, Indian Institute of Technology (IIT), New Delhi, India, November 23, 2007.
    (Invited by IEEE CAS Society Delhi Chapter.)
14. School of Electrical & Electronic Engineering, Nanyang Technological University, Singapore, November 19, 2007.
    (Invited by IEEE CAS Society Singapore Chapter.)
15. Simon Fraser University, Burnaby (Vancouver area), Canada, June 21, 2007.
    (Invited by IEEE CAS Society Joint Chapter of the Vancouver/Victoria Sections.)
16. School of Computer Science and Technology, Huazhong University of Science and Technology, Wuhan, China, November 26, 2003. (2 talks).
    (Invited by the School and the IEEE CAS Society Beijing Chapter.)
17. Beijing Broadcasting Institute (now known as Communication University of China), Beijing, China, November 24, 2003.
    (Invited by the Institute and the IEEE CAS Society Beijing Chapter.)
18. National Laboratory on Machine Perception, Beijing University (called Peking University in China), Beijing, China, November 24, 2003.
    (Invited by the Lab and the IEEE CAS Society Beijing Chapter.)
19. Division of Engineering, Brown University, Providence, Rhode Island, USA, August 19, 2003.
    (Invited by the Division and the IEEE Providence Section.)
20. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, August 13, 2002.
    (Invited by IEEE CAS Society (Singapore Chapter) and the Department.)
21. Ajou University, Seoul, South Korea, April 22, 2002. (2 talks).
    (Invited by IEEE Seoul Section CAS Chapter and the University.)

**(3) Non-Technical Colloquia/Seminars and Panels**

22. **Panelist/Speaker**, "Seeking Acceptance, Coping with Rejection: Publishing Your Work in Scholarly Journals," SCU Faculty Development Workshop, Santa Clara University, Santa Clara, California, USA, May 4, 2010.
23. **Alumni Speaker**, Celebration - the Golden Jubilee (50th) Anniversary of Computing at the University of Louisiana at Lafayette and the Silver Jubilee (25th) Anniversary of the Center for Advanced Computer Studies, the University of Louisiana at Lafayette, USA, October 30 – 31, 2009.
    (Invited by the Center for Advanced Computer Studies, the University of Louisiana at Lafayette.)
24. **Panelist**, Panel on "Managing Projects Across International Boundaries," 2009 IEEE International Symposium on Circuits and Systems (ISCAS) Graduates of the Last Decade (GOLD) / Technology Management Joint-Session, Taipei, Taiwan, May 25, 2009.
    (Invited by IEEE Circuits and Systems Society GOLD.)
25. **Speaker**, "Managing U.S.-China and University-Industry Joint Projects – A Share of Experience," 2009 IEEE International Symposium on Circuits and Systems (ISCAS) Graduates of the Last Decade (GOLD) / Technology Management Joint-Session, Taipei, Taiwan, May 25, 2009.
    (Invited by IEEE Circuits and Systems Society GOLD.)
26. **Speaker**, ""Work Smarter! Not Harder!" - How to be "Successful" in Your Engineering Research Career?" Institute for Infocomm Research, Singapore, July 4, 2008.
    (Invited by IEEE WIE (Women in Engineering) Singapore Affinity Group, IEEE Circuits and Systems Society Singapore Chapter, and Institute for Infocomm Research, Singapore.)
27. **Panelist**, Panel on "Fifty Ways to Promote Scholarship," SCU Research Colloquium, Santa Clara University, Santa Clara, California, USA, February 28, 2006.
    (Invited by the Associate Provost for Faculty Development, Santa Clara University, USA.)

28. **Panelist & Facilitator**, Panel & Discussion on "Preparing Your Petition for Tenure and Promotion," Teaching-Scholar Symposium, Santa Clara University, Santa Clara, California, USA, February 5, 2004.
(Invited by the Associate Provost for Faculty Development, Santa Clara University, USA.)
29. **Panelist/Speaker**, "What do Journal Editors Really Want?" Teaching-Scholar Symposium, Santa Clara University, Santa Clara, California, USA, October 28, 2003.
(Invited by the Associate Provost for Faculty Development, Santa Clara University, USA.)
30. **Speaker**, "Enhancing Scholarly Productivity at SCU – Collaborative Research," Teaching-Scholar Symposium, Santa Clara University, Santa Clara, California, USA, May 1, 2002.
(Invited by SCU Research Committee and the Faculty Development Program, Santa Clara University, USA.)
31. **Speaker**, "Corporate Funding and International Collaborations," Research Symposium, Santa Clara University, Santa Clara, California, USA, April 25, 2001.
(Invited by SCU Sponsored Projects Office and University Research Committee, Santa Clara University, USA.)

**(4) Technical Colloquia/Seminars**

32. School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University, Shanghai, China, May 17, 2013.
33. IEEE Circuits and Systems (CAS) Society Santa Clara Valley Chapter, Santa Clara, California, U.S.A, September 26, 2011.
34. IEEE CAS Society Singapore Chapter, Center for Signal Processing, and Division of Information Engineering, School of EEE, Nanyang Technological University, Singapore, December 13, 2010.
35. Institute of Image Communication and Information Processing, Shanghai Jiao Tong University, Shanghai, China, September 8, 2010.
36. School of Electrical & Electronic Engineering (EEE), Nanyang Technological University, Singapore, July 11, 2008.
37. IEEE Signal Processing (SP) Society Santa Clara Valley Chapter and IEEE CAS Society Santa Clara Valley Section, Santa Clara, California, U.S.A, February 11, 2008.
38. Institute for Infocomm Research (Singapore), IEEE CAS Society Singapore Chapter, IEEE Industrial Electronics (IE) Society Singapore Chapter, and IEEE SP Society Singapore Chapter, Singapore, January 24, 2008.
39. Huawei Technologies, Shenzhen, China, October 21, 2007.
40. The Center for Advanced Computer Studies, University of Louisiana at Lafayette, Lafayette, Louisiana, USA, December 19, 2006.
41. Institute of Information Systems and Applications, National Tsing Hua University, Taiwan, November 24, 2006.
(Invited through sponsorship by Taiwan National Science Council and Lee Center of NCTU.)
42. Department of Electrical Engineering, National Cheng Kung University, Taiwan, November 23, 2006. (2 talks).
(Invited through sponsorship by Taiwan National Science Council and Lee Center of NCTU.)
43. College of Electrical Engineering and Computer Science, National Taiwan University, Taiwan, November 22, 2006. (2 talks).
(Invited through sponsorship by Taiwan National Science Council and Lee Center of NCTU.)
44. Lee Center for Networking Research, Center for Telecommunications Research, and Department of Electronics Engineering, National Chiao Tung University (NCTU), Taiwan, November 21, 2006. (4 talks).
(Invited through sponsorship by Taiwan National Science Council and Lee Center of NCTU.)
45. Communication University of China, Beijing, China, April 29, 2006.
46. Genesis Microchip Inc., Alviso, California, U.S.A, March 17, 2006.
47. Division of Information Engineering & the Center for Signal Processing, School of Electrical & Electronic Engineering, Nanyang Technological University, the IEEE SP Singapore Chapter, and the IEEE CAS Singapore Chapter, Singapore, July 28, 2005. (2 talks).
48. Communication University of China, Beijing, China, July 12, 2005.
49. Institute of Image Communication and Information Processing, Shanghai Jiao Tong University, Shanghai, China, July 7, 2005. (2 talks).
50. Department of Electronics Engineering, National Chiao Tung University, Hsinchu, Taiwan, June 24, 2005. (2 talks).
51. Industrial Technology Research Institute (ITRI), Hsinchu, Taiwan, June 23, 2005. (2 talks).
52. Institute for Infocomm Research, Singapore, February 17 and March 1, 2005. (2 talks).
53. Department of Computer Science and Information Engineering, Tamkang University, Tamsui, Taiwan, March 30, 2004.
54. Department of Electrical Engineering, National Dong Hwa University, Hualien, Taiwan, March 25, 26, and 29, 2004. (3 talks).
(Invited as Distinguished Visiting Professor / Special Invited Speaker through a program sponsored by Taiwan Ministry of Education.)

55. Shannon Lecture Series (the Santa Clara Valley Chapter of the IEEE Computer Society and the Stanford Student Chapter of the IEEE, Stanford University), Stanford, California, U.S.A, March 18, 2004.
56. Institute for Infocomm Research, Singapore, February 17 and 19, 2004. (2 talks).
57. Inter-University Semiconductor Research Center, Seoul National University, Seoul, South Korea, April 23, 2002.
58. Faculty of Information Technology and Faculty of Engineering, Multimedia University, Cyberjaya, Malaysia, July 30, 2001.
59. The Center for Advanced Computer Studies (CACS) Centennial Computing Workshop, University of Louisiana at Lafayette, Lafayette, Louisiana, USA, November 5-6, 1999.
60. Focus Seminar on DTV, Center for Signal Processing, Nanyang Technological University, Singapore, September 10, 1999.
61. Institute of Microelectronics (IME), Singapore, July 22, 1998.
62. Singapore MPEG Seminar, Singapore, June 10, 1998.
63. Medianix Semiconductor, Inc., Mountain View, California, USA, May 29, 1998.
64. Focus Seminar on DSP Applications in Multimedia Systems, Center for Signal Processing, School of EEE, Nanyang Technological University, Singapore, April 22, 1998.
65. Television Corporation of Singapore (TCS), Singapore, March 12, 1998.
66. NJR Corporation (New Japan Radio), Mountain View, California, USA, July 9, 1997.
67. Institute of Information Science, Academia Sinica, Taipei, Taiwan, July 8, 1996.
(Invited by Dr. Yuan T. Lee, President of Academia Sinica and a Nobel Laureate.)
68. Institute of Electronics, Chinese Academy of Sciences, Beijing, China, June 18, 1996.
(Invited through Beijing Association for Science and Technology Exchanges with Foreign Countries.)
69. Department of Electronic Engineering, Tsinghua University, Beijing, China, June 17, 1996.
(Invited through Beijing Association for Science and Technology Exchanges with Foreign Countries.)
70. NJR Corporation (New Japan Radio), Mountain View, California, USA, December 18, 1995.
71. Philips Semiconductors, Sunnyvale, California, USA, February 28, 1995.
72. LSI Logic Corporation, Milpitas, California, USA, June 24, 1994.
73. Department of Mathematics and Computer Science, San Jose State University, San Jose, California, USA, May 2, 1994.
74. Hewlett-Packard Laboratories, Hewlett-Packard Company, Palo Alto, California, USA, September 17, 1993.
75. ASPEC Technology, Inc., Santa Clara, California, USA, April 5, 1993 and May 18, 1993.
76. Department of Mathematics and Computer Science, San Jose State University, San Jose, California, USA, October 19, 1992.
77. Faculty Research Seminar, Department of Electrical Engineering and Department of Computer Engineering, Santa Clara University, Santa Clara, California, USA, April 30, 1992.
78. Workshop on VLSI Research and Education, The Center for Advanced Computer Studies, University of Southwestern Louisiana, Lafayette, Louisiana, USA, April 9-10, 1992.
79. 15th Annual Meeting of the SIAM Southeastern Atlantic Section, Western Carolina University, Cullowhee, North Carolina, USA, April 12-13, 1991.
80. The Parallel Processing Connection, Sunnyvale (presentation held at Redwood City), California, USA, January 14, 1991.
81. Department of Electrical Engineering, the University of Rhode Island, Kingston, Rhode Island, USA, October 15, 1990.
82. Department of Electrical Engineering and Computer Science, Santa Clara University, Santa Clara, California, USA, February 1, 1990.
83. Department of Mathematics and Computer Science, San Jose State University, San Jose, California, USA, November 8, 1989.
84. Department of Computer Science, University of Georgia, Athens, Georgia, USA, July 6-7, 1989.
85. IBM General Technology Division, Hopewell Junction, New York, USA, June 12, 1989.
86. Philips Laboratories, North American Philips Corporation, Briarcliff Manor, New York, USA, May 24, 1989.
87. Department of Electrical and Computer Engineering, Louisiana State University, Baton Rouge, Louisiana, USA, April 11, 1989.


## PROFESSIONAL APPEARANCES ON MEDIA

Professional appearances on the following public media (over 45 times), 1995-present:
- Newspaper (San Francisco Bay Area, California, U.S.): World Journal, Sing Tao Daily, San Jose Mercury News, and Silicon Valley/San Jose Business Journal.
- TV (San Francisco Bay Area, California, U.S.): Channel 26 KTSF (Cable Channel 8).

- Radio (San Francisco Bay Area, California, U.S.): AM 1450, Sing Tao Chinese Radio FM 96.1, and KCBS 740 AM.
- Newspaper magazine (U.S.): Sing Tao Daily-U.S. Life Magazine.
- Newspaper (Singapore): The Straits Times and Lianhe Zaobao.
- TV (Singapore): Channel 5, Channel 8, and Channel 12.