LEIMING REMINGTON QIAN

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RESEARCH INTERESTS

Speech, image and video processing, videophone and videoconferencing, joint source-channel coding, network communications, Internet protocols, joint time-frequency signal analysis, applications in image/video transmission, compression, deblocking and denoising.

EDUCATION

01/99 - 09/01 **Doctor of Philosophy**, Electrical Engineering, Sep 2001.
University of Illinois at Urbana-Champaign
Advisor: Professor Douglas L. Jones
Ph.D Topic: Joint Source-Channel Video Transmission
Grade Point Average: 3.90/4.00

08/96 - 01/99 **Master of Science**, Electrical Engineering, January 1999.
University of Illinois at Urbana-Champaign
Advisor: Professor Douglas L. Jones
Thesis: *Joint Source-Channel Matching for Wireless Video Transmission*

09/91 - 7/96 **Bachelor of Engineering** in Department of Precision Instruments, June 1996.
Bachelor of Engineering in Department of Automation, June 1996.
both graduated with honors.
Tsinghua University, Beijing, P. R. China

EXPERIENCE

01/04 - present **Software Engineer**: Conversational Machines group, IBM Research
Member of the WebFountain project group.

10/01 - 12/03 **Software Engineer**: Voice Systems, IBM T. J. Watson Research Center
Member of the XML ViaVoice Technology (XVT) group, responsibilities involve developing the audio system libraries, system process management and administration console, also participating in the developement of a new XML-based speech application interface standard.

05/15 - 08/04 **Summer Intern**: ATI Research Silicon Valley, Inc.

Developed a real-time algorithm to perform inverse 3:2 pulldown for captured film sequences using ATI's TV tuner card, also wrote the corresponding commercial kernel software component, **patent application in progress**.

08/96 - 05/00 **Research Assistant**: Coordinated Science Laboratory, University of Illinois.

Conducted research in developing *Time-Frequency Signal Representation* software package. Member of the *Joint Source-Channel Coding* project group, responsible for video-related research and development, focusing on the application of video coding and transmission using joint source-channel matching over network links, especially wireless network and Internet.

08/93 - 06/96 **Research Assistant**: Optical Memory National Engineering Center, China.

Member of the *CD-Jukebox* project group under Professor Longfa Pan, developed signal processing and control firmware for the first generation 2X CD-ROM drive in China.

08/92 - 08/93 **Research Assistant**: Department of Precision Instrument, Tsinghua University.

Member of the research group under Professor Tianhuai Ding, designed and implemented the circuit board for the *Automatic Controller for Cotton Drying*.

08/91 - 08/92 **Software Developer**: Department of Precision Instrument, Tsinghua University.

Author of the *Casting CAD* software package that won the second-place of the *University Challenger's Award*.

ADVANCED COURSEWORK

Signal Processing: Advanced Digital Signal Processing, Wavelets and Filter Banks, Image Processing, Statistical Image and Video Processing, Speech Processing and Recognition, Multidimensional Signal Processing, Introduction to Image and Video Signal Processing.

Communications: Signal Detection and Estimation Theory, Random Processes, Digital Communications, Electrical Waves and Systems, Advanced Digital Communication Systems, Digital Communications, Communication Network for Computers, Wireless Communication Networks.

Control Systems: Control System Theory and Design.

Mathematics: Coding Theory, Information Theory, Nonlinear Optimization.

HONORS & ACTIVITIES

Tsinghua University Challenger Award for the Casting CAD software package.
Honor student for five consecutive years, Tsinghua University.
Author of various downloadable software programs.

COMPUTER SKILLS

Professional programmer in C/C++, also has experience in software development with most of the other current programming languages (Java, Perl, Tcl/TK, Javascript, X86 Assembly, Fortran, Basic, Shell scripting) and data interface standards (HTML, XML/VXML, Postscript, etc). *Administrator level familiarity* with UNIX-based (Linux, AIX, Solaris, HP-UNIX), DOS and Windows (9x/NT/2K) operating systems. Extensive experience with Matlab programming and web content development.

LANGUAGE EFFICIENCY Highly literate in English, **667/677** in TOEFL and **2350/2400** in GRE General Test. Native language Chinese.

PUBLICATIONS

JOURNAL PUBLICATIONS

L. R. Qian, D. L. Jones, K. Ramchandran, and S. Appadwedula,
"*A General Joint Source-Channel Matching Method for Error Resilient Wireless Video Transmission*", submitted to the *IEEE Transactions on Image Processing*.

L. R. Qian and D. L. Jones,
"*Minimax Disappointment Criterion for Broadcasting based on Joint Source-Channel Coding*", submitted to the *IEEE Transactions on Broadcasting*.

L. R. Qian and D. L. Jones,
"*Joint Source-Network Video Transmission*", to be submitted to the *IEEE Transactions on Communications*.

CONFERENCE PUBLICATIONS

S. Appadwedula, D. L. Jones, K. Ramchandran and L. R. Qian,
"*Joint Source-Channel Matching for Wireless Image Transmission.*", in Proceedings of International Conference on Image Processing, Chicago, 1998.

L. R. Qian, D. L. Jones, K. Ramchandran and S. Appadwedula,
"*Joint Source-Channel Matching for Wireless Video Transmission.*", in Proceedings of Digital Signal Processing Conference Symposium, Australia, 1999.

L. R. Qian, D. L. Jones, K. Ramchandran and S. Appadwedula,
"*A General Joint Source-Channel Matching Method for Wireless Video Transmission.*", in Proceedings of Digital Communication Conference, Snowbird, Utah, 1999.

L. R. Qian, D. L. Jones, K. Ramchandran and S. Appadwedula,
"*A General Joint Source-Channel Matching Method for Wireless Video Transmission.*", poster session, CEPS Conference, Urbana, 1999.

Jia-Ru Li, X. Gao, L. R. Qian and V. Bharghavan,
"*Goodput Control for Heterogeneous Data Streams.*", the 10th International Workshop on Network and Operating System Support for Digital Audio and Video (NOSSDAV), Chapel Hill, NC, June 2000.

L. R. Qian and D. L. Jones,
"*Minimax Disappointment Criterion for Video Broadcasting.*", in Proceedings of IEEE International Conference on Image Processing, Athens, Greece, 2001.

THESIS

L. R. Qian, "*Joint Source-Channel Matching for Wireless Video Transmission*", M.S. Thesis, University of Illinois at Urbana-Champaign, Jan, 1999.

L. R.Qian, "*Joint Source-Network Video Transmission*", Ph.D. Thesis, University of Illinois at Urbana-Champaign, Sep 2001.

REFERENCES

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