ZHIPING HU

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A highly competent research and software engineer with extensive background in video compression and video streaming, and wireless networks seeks for a R&D software engineer position.

- ✓ Extensive experience with embedded system software development under GNU/Linux.
- ✓ Industry expertise in MPEG video, WIFI, UPnP, and Set-Top boxes.
- ✓ Object Oriented Programming with C++ and C and POSIX Multi-threaded programming.
- ✓ Master of Science in Electrical and Computer Engineering and Bachelor of Science concentrating in Electrical Engineering.
- ✓ Collaborate with and provide direction to team members; conduct presentations on research findings to advisors, research teams, and sponsors.

TECHNICAL EXPERTISE

Programming	C/C++, POSIX Multi-threaded Programming, gdb/ddd and valgrind Debugging Tools, GNU/Linux Development Environment, Bash shell scripting, TCP/IP Socket Programming.
Wired/Wireless Network Protocols/Standards	IEEE802.11a/b/g/e, RTP/RTSP/RTCP, TCP/UDP/IP, HTTP, UPnP
Video Knowledge	MPEG-1/2/4, JPEG2000, MPEG/H.264 AVC, AVI, Divx, and state-of-the-art motion-compensated wavelet video Codec such as MC-EZBC and SIV.
Computer Architecture	MIPS, AMD Athlon, 80x86/Pentium
Design and Simulation	NS-2, HSPICE, PROTEL
Other	Familiarity with open-source software packages of MPEG4-IP streaming system and Darwin Server.

EDUCATION

UNIVERSITY OF CALIFORNIA, DAVIS
Master of Science, Electrical and Computer Engineering, 2005
Thesis: "Robust wavelet video coding and video streaming over IEEE802.11a/e WLANs."

CENTRAL SOUTH UNIVERSITY, CHINA
Bachelor of Science, Electrical Engineering, 2002
- ♦ Graduate with Honor, 2002
- ♦ Scholarship for Excellent Student, 1998–2002

SELECTED ACADEMIC PROJECTS
- ♦ Optimal intra coding in MCTF-based Codec for Robust video communication over packet networks.
- ♦ Scalable motion vector coding for MC-EZBC.
- ♦ Comprehensive study of Hewlett-Packard PA-RISC processors and AMD Athlon processors.
- ♦ Parallel implementation of an efficient algorithm for TSP problem.
- ♦ New approach to reduce memory conflicts in vector processors.

PROFESSIONAL HISTORY

UNIVERSAL ELECTRONICS INCORPORATION   10/2005 – Present
Software Engineer
Research, design and development software systems utilized in advanced technologies for wireless communication devices, Set-Top boxes, and electronic components.
- ♦ Design and implement a logic control system for a home media server designed for Set-Top boxes.
- ♦ Analyze software requirements to determine feasibility of design.

- Consult with other engineering staff to evaluate interfaces among different software modules and for all operational and performance requirements.

PROACTIVE MEDIANET LAB, University of California, Davis   2004–07/2005
Multimedia streaming, systems, and compressions research laboratory.
Research Assistant
Conduct research on subjects of cross-layer optimized video content distribution over wireless networks, error resilient video coding, and scalable video coding.
- Addressed challenges in multimedia streaming applications through extensive research and development.
- Conducted research in cross-layer optimized algorithms for quality of service support in multimedia streaming over IEEE802.11 WLANs.
- Delivered completed algorithms for video content distribution over error prone wireless environment and software of video codec API and dynamic bitstream extractor for a scalable video streaming platform.
- Created optimal improvements through design and implementation of multiple applications including wireless multimedia streaming testbed, RTP packetizer of scalable interactive video, optimal intra-coding algorithm for robust wavelet video streaming over error prone networks, and scalable motion vector coding scheme.
- Collaborated with research team members in identifying

PHILIPS RESEARCH, New York, NY   2004
One of the world's major private research organizations.
Intern
Conducted research as part of large project investigating Philips' AV home networks to standardize Universal Plug and Play (UPnP) QoS AV system and create "wireless connected home."
- Designed and implemented UPnP enabled wireless multimedia streaming testbed in Linux environment and proposed a UPnP quality-of-service signaling algorithm for layered video streaming in digital home networks.
- Analyzed performance of multimedia streaming algorithms and wireless MAC protocols (IEEE802.11b/e).
- Proper testing of developed video streaming software.

UNIVERSITY OF CALIFORNIA, Davis   2003
Teaching Assistant
Supported Computer Architecture and Electronic Circuit in ECE classes.
- Conducted tutorials, maintained office hours to assist students, and graded examinations and papers.

CENTRAL SOUTH UNIVERSITY, China   2000–2002
Electronic Design Lab member
- Supported development of PCB board through creation of embedded system using Intel 8051 series microchips and intelligent instrument design.

PUBLICATIONS

PUBLICATIONS
M. van der Schaar, Y. Andreopoulos, Z. Hu, "Optimized Scalable Video Streaming over IEEE 802.11a/e HCCA Wireless Networks under Delay Constraints", IEEE Trans. on Mobile Computing, vol. 5, no. 6, pp. 755-768, June 2006.
Y. Andreopoulos, M. van der Schaar, Z. Hu, S. Heo and S. Suh, "Scalable resource management for video streaming over IEEE802.11a/e," Proc. IEEE International Conf. on Acoustics Speech and Signal Processing, Toulouse, FR, ICASSP May 2006
S. Shankar N., Z. Hu, M. van der Schaar, "Cross-layer optimized transmission of wavelet video over IEEE 802.11a/eWLANs," the 14th International Packet Video Workshop, Irvine, CA, December 2004.
Z. Hu, M. van der Schaar, B. Pesquet-Papescu, "Scalable Motion Vector Coding for MC-EZBC," EURASIP 2004.

Z. Hu, M. van der Schaar, "Cross Check of Thompson Proposal for SVC CE4," ISO/IEC JTC1/SC29/WG11/MPEG2004/M11672 (standardized contribution).