

CURRICULUM VITAE

Richard Hodges

E-mail: rbhodges@gmail.com
<http://www.richardhodges.com/>
 Voice: (510)409-2869

Accomplishments in Technology (selected)

Developed high performance Noise Reduction, AEC and other algorithms for audio.

Worked with embedded and cloud-based ASR. Used HTK with novel ASR techniques.

Designed, simulated, and verified high-performance acoustic modules

Represented Motorola SPS in the ISO/IEC MPEG international standards process, and helped Motorola define, develop, and market its strategy for silicon implementation of video compression

Conceived and implemented a proprietary low bit rate voice coding algorithm which I invented. I managed development of products based on this algorithm through the stages of concept, prototype (hardware and software), financing, and commercialization. (ACT Networks)

Made significant contributions to artificial intelligence, including speaker-dependent and speaker-independent speech recognition and automated deduction

Implemented numerous original technology projects:
 a new type of electronic musical instrument (US patent 3,948,138)
 hexaphonic nonlinear signal processing system for guitar
 image and signal processing: coding, noise & echo mitigation, etc.
 imbedded microprocessor system for trace chemical analysis
 gyroscope controlled 2-wheel self-balancing platform
 (and many others)

Areas of Proven Experience

Sound and image processing, coding, and recognition algorithms
 Initiative and full range of skills in integrated development of innovative systems, including algorithms, software, digital and analog electronics, and acoustical, optical, and other technologies

Management of technical development teams
 WWW authoring and Webmastering
 International standards development and deployment
 Artificial intelligence methods

Development Environments: Matlab, Simulink, COMSOL, C, C++, Lisp, Fortran, ...
 Computer Systems: Windows, Mac, Linux, ...

Patents Issued and applied for

US 3,948,138 A New Type of Musical Instrument
 US 6,747,581 Techniques for Variable Sample Rate Conversion
 US 7,236,929 Echo Suppression and Speech Detection Techniques
 US 7,433,462 Techniques for Improving Telephone Audio Quality
 US 7,925,004 Speakerphone with Downfiring Speaker & Directional Microphones
 US appl. 13/458,122 Reduction of Loudspeaker Distortion for Improved AEC

Publications

W.W. Bledsoe and Richard Hodges, "A Survey of Automatic Theorem Proving," *Proceedings of AAAI-87 (Survey Papers)*, AAAI, 1987

"The MPEG Video Compression Standard," *Computer Design*, 1993

"Drum is the Ear of God: Africa's Inner World of Music," *Material for Thought* #13, Far West Press, San Francisco 1992

"The Quick and the Dead: The Souls of Man in Vodou Thought," *Material for Thought* #14, Far West Press, San Francisco 1995

"From the Mat to the Street: Judo and Life", *Material for Thought* #15, Far West Press, San Francisco 1998

"The Way of a Tourist," *Shambala Sun* Feb/Mar 1996

Foundation Course in African Music (with C. K. Ladzekpo), a popular WWW page at <http://home.comcast.net/~dzinyaladzekpo/Foundation.html>

"Case Study: Cost-effective and rapid audio headset design and verification," *EE Times* Audio Design Line 6/22/2010

"Thus Spake Beelzebub", *Gurdjieff International Review* 2012 (online), <http://www.gurdjieff.org/hodges1.htm>

Education

Graduate Studies, Mathematics, UC Berkeley, 1964-1972

BA Mathematics, Rice University, Houston, 1960-1964

Other Accomplishments and Interests

Fourth Degree Black Belt in Judo; winner of Gold Medal at the 2009 World Masters Judo Tournament (see <http://r.hodges.home.comcast.net/~r.hodges/JudoMasters.html>)
Two-time winner of U.S. Masters National Championship

Advanced Class Amateur Radio License (KE6SO)

Percussion, Keyboard, and Woodwind musician

Career Biography (selected)

April 2012 - Present

Principal Scientist, Conexant Systems Inc. Audio DSP systems, machine learning, acoustic design, simulation, and measurement.

April 2005 - April 2012

Principal Scientist, Plantronics Inc. (acquired Octiv Inc.)

Responsible for development of algorithms and platforms for audio signal processing: noise reduction, AEC, VAD, quality evaluation, etc.

Jan 2000 - April 2005

VP Technology, Octiv Inc., Berkeley CA

Responsible for oversight of all new technology including digital, analog, and acoustical. Develop and implement new algorithms for audio signal processing and telecommunications.

Jan 95 - Jan 2000

Senior Engineer, Orban Inc., San Leandro CA

Develop and implement advanced algorithms for audio coding and processing

Feb 94 - Dec 95

Research Technologist, Gibson USA, Berkeley CA

Develop technology for the next generation of electronic musical instruments

June 1988 - Feb 94

Technology Sales, Motorola SPS, Sunnyvale CA

Work with major strategic customers to develop next-generation silicon technology for video compression, RF digital communication, DSP applications, and other areas

May 1985 - May 1988

VP Technology, ACT Networks, Westlake Village CA

I founded this company to develop and commercialize medium bit-rate real-time speech coding for voice/data telecommunication applications. ACT Networks became a publicly traded company of which I was a major stockholder.

Mar 1980 - Apr 1985

Senior Scientist, Votan, Fremont CA

Responsible for developing new technology in signal processing and artificial intelligence for analysis, recognition, and compression of human speech.

June 1975 - Feb 1980

Senior Scientist, Teknekron, Berkeley CA

Developed hardware and software for image processing, image coding, pattern recognition, real-time control

December 1970 - June 1975

Founder and CEO, Extended Digital Concepts, Berkeley CA

Developed and marketed biofeedback kits (EEG, EMG)

Sept 1969 - Aug 1973

Assistant Professor, EECS dept., UC Berkeley

Taught courses in Computer Science and Artificial Intelligence.