

# **Dr. Oded Gottesman**

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## **RESUME**

### **EXPERIENCE**

#### **Technology Expert for Patent Infringement**

September 2001 – Present

Providing world-class expertise and experience in working with leading law firms, providing expert witness services, prior art searching, and related consulting for patent infringement, trade secret disputes, and related matters. Among areas of expertise are DSP, telecommunications, cellular networks, packetized networks, VoIP, streaming systems, real-time systems, timing and synchronization in cellular and other networks, location and position systems, transcoding between links and networks having multiple timing sources and data rates, source coding, channel coding, error control coding, algorithms, speech and audio processing, signal compression, speech coding, encryption, algorithms, software, hardware and implementation. Served as expert witness in several cellular network and smartphone / tablet device related cases, including network operation, protocols, layers, signal processing, user / human interface, and applications. Served as expert witness & consultant for law firms and clients including Alston & Bird, AZA Law, BakerHostetler, Cooley Godward Kronish, Comcast, Cummins, Dechert, Echelon, Fenwick & West, Fish & Richardson, Google, Hill Kertscher & Wharton, Kirkland & Ellis, MagicJack, Sidley Austin, Weir & Partners, Woodcock & Washburn, Microsoft, Nokia, Parts Geek, Samsung, Saint Lawrence Communication, Toshiba, TruePosition, Williams & Connolly, and Wiav.

#### **Compendent, Inc., Los Altos Hills CA**

February 2001 – Present

Starting and running a small startup company developing for outsourcing of DSP R&D and implementation, and licensing intellectual property. Developing technologies for various communication networks, including cellular network, satellite network, telephone networks, packetized networks, and military networks. R&D and implementations of technologies related to streaming-media systems. DSP contracts for SignalCom (Microsoft company) and the Department of Defense (DoD, DARPA, NATO). The company's hardware and/or software products were evaluated, tested by and/or integrated into systems by major industry leaders including General Dynamics, EADS, Boeing, Lockheed Martin, Northrop Grumman, Raytheon, Rockwell Collins, Rohde & Schwarz, L-3 Comm., etc.. Led the software & hardware design including component selection. DSP hardware and software. R&D and implementation DSP projects - low-rate speech coder, noise cancellation, echo cancellation, and communication for wireless applications and streaming media applications for environments that include various timing synchronizations, error control coding (such as FEC), modem (various modulations), etc.. Voice communication product development for cellular networks, wireless networks, packetized networks, VoIP, satellite

communication, military and security radio devices, etc.. Exploring advanced robust positioning methods that combined methods such as GPS and cellular network signals.. Developing proprietary timing and synchronization solution for links and systems with multiple data timings. Development and implementation of adaptive algorithms, networking protocols, multi-tasking, embedded systems, timing and synchronization, etc.. Inventor of a patent for transmission of signals over degraded channel such as cellular network, and packetized network. The company developed, manages the production, and sells line of proprietary electronic boards and standalone devices, or can be embedded in other devices or systems having different timing sources, in synchronous and asynchronous links.

**DSP Communications, Israel,**

January 1994 - September 1995

• Title: *Speech Coding Group Leader*

DSPC is a cellular technologies manufacturer of cellular phone chipset that includes the cellular network interface and the voice compression. R&D and implementation of a proprietary multi-rate speech coder at 4-8 kbps at floating-point and fixed-point. Leading the DSP development and implementation of PDC's PSI-CELP and VSELP standards, and noise cancellation & echo cancellation, on the company's DSP chipset (including FEC, and modem/modulation, masked on TI's TMS320c54x). Developing and implementation of a noise-canceller for digital-cellular phone. The PDC chipset has become the flag ship of the company. Oded's contribution was the key in turning DSPC, from a poor company (in term speech coding expertise) in 1994, into a very successful one, leading to a \$1.6 billion acquisition by Intel.

**Optibase - VCON, Israel,**

April - December 1993

• Title: *Audio Group Manager*

Optibase/VCON is a manufacturer of streaming-media systems. Managing and leading DSP audio team in implementation of DSP video-teleconferencing and streaming multi-media system that combined G.728, G.722, and AEC. R&D and implementation of a proprietary Acoustic-Echo-Canceller (AEC) for teleconferencing. The company developed and sold its self developed teleconferencing electronic boards.

**AT&T Bell Labs, Murray Hill,**

January - September 1992

• Title: *DSP Consultant*

M.Sc. degree research, and thesis writing, in the Signal Processing Research Department.

**Vibration Specialty Corporation: Philadelphia, PA,** January 1991 - August 1995

• Title: *DSP Consultant – Real-Time DSP Software*

Development and implementation of the real-time DSP software for the SpectraViB, a 4-channel spectrum analyzer and data collector. The company developed and sold its self developed teleconferencing electronic boards.

**Efrat - Comverse Technology, Israel,**

October 1989 - September 1990

• Title: *DSP Engineer of Trilogue voice mail system for telephone & cellular networks*

- Implemented interface with telephone network.

- Designed and implemented DSP algorithms (speech coding, echo cancellation, telephone, DTMF, etc.) using the Texas-Instruments TMS320c25, and the NEC  $\mu$ PD77p25 processors.
- Managed the **hardware-software integration** cooperating with the hardware engineers and the upper software's programmers.

### Computers

- IBM PC (under Windows 7, Win XP, Win 2000, Win NT, Win 3.1, DOS and Linux), SUN (under Unix/Solaris), Android, and Apple OS / iOS.
- Programming: C++, C, PASCAL, FORTRAN, various DSP Assembly codes,
- PC system manager of the Signal Compression Laboratory at UCSB,
- Computer networking,
- Programming of Data-Base applications,
- Programming of Internet protocols, sockets, TCP-IP, etc.,
- Programming of distributed systems, and embedded systems,
- Programming Android application, and iOS (iPhone, iPad)
- Web site programming including HTML, XML, JAVA, CGI, etc..

### EDUCATION

**Post-Doctoral Research, Univ. of CA Santa Barbara** January 2001 – March 2002

- Title: *Post Doctoral Researcher*  
Researching in the area of Voice-over-Internet Protocol (VoIP), and issues of packetized networks.
- **Ph.D. - University of California at Santa Barbara,** October 1995 – Fall 2000  
Electrical and Computer Engineering Department,  
Santa Barbara, CA 93106, USA
  - Ph.D.: Oct 1995-2000
  - Graduate Student Researcher: Supervised by **Prof. Allen Gersho**
  - Ph.D. Research: "*Analysis-by-Synthesis Waveform Interpolative Coding of Speech at Low Bit Rates*"
- **M.Sc.E.E. - Drexel University,**  
Electrical and Computer Engineering Department,  
32nd and Chestnut Sts. Philadelphia, PA 19104, USA
  - Master of Science: Oct 1992; **Cum Laude, GPA: 4.0**
  - M.Sc. Thesis: "*Low Delay CELP Wide Band Speech Coding at 32 kbps*".
  - The research was performed in **AT&T Bell Labs, Murray Hill.**
- **B.Sc.E.E. - Ben-Gurion University,**  
Electrical and Computer Engineering Department,  
P.O.box 653 Beer Sheva 84105, Israel
  - B.Sc.: June 1988; **Cum Laude, GPA: 3.6; Class Standing: Top 3%**
  - Electrical Engineer (Majors: DSP, Communications, and Computers)
  - Dean's List: 1987-8, 1986-7 and 1985-6
  - B.Sc. Senior Project: "*A Speaker-Independent Speech Recognition System based on Dynamic Time Warping and HMM*".

## AWARDS

- ✓ **Ericsson-Nokia Best Paper Award** for the paper: "Enhanced Waveform Interpolative Coding at 4 kbps" by Oded Gottesman and Allen Gersho, *IEEE Workshop on Speech Coding*, Finland, 1999.
- ✓ Drexel University: **Cum Laude** for M.Sc.E.E. study, June 1992.
- ✓ The Knesset (**The Israeli Parliament**) -The Education and Culture Committee: Honor for B.Sc.E.E. study, 1988.
- ✓ Ben-Gurion University: **Cum Laude** for B.Sc.E.E. study, June 1988.
- ✓ Ben-Gurion University: **Dean's List**: 1987-8, 1986-7 and 1985-6.

## PRIZES

- ✓ **Compandent Technologies - Winner of the Business Plan Competition** of the Center for Entrepreneurship & Engineering Management (CEEM) at UCSB.

## PATENTS

- International patents in the area of speech coding, and transmission over degraded channel such as cellular networks and packetized networks.

## ACTIVITIES

- IEEE Senior Member- Signal Processing Society, and Communications Society
- Paper peer review

## OTHER EDUCATION & EXPERIENCE

- Selected business courses
- Entrepreneurship,
- Marketing campaigns including, strategy development, Internet based methods, concepts, and advertising material preparation,
- Sales, including correspondence, agreement negotiation and closing deals, customer support.
- Hardware and software project management,
- Study and analysis of new problems and technologies,

## SELECTED PUBLICATIONS

- [1] O. Gottesman and A. Gersho, "Enhanced Waveform Interpolative Coding at Low Bit-Rate," in *IEEE Trans. Speech and Audio Processing*, vol. 9, November 2001, pp. 786-798.
- [2] O. Gottesman and A. Gersho, "Enhancing Waveform Interpolative Coding with Weighted REW Parametric Quantization," in *IEEE Workshop on Speech Coding Proc.*, pp. 50-52, September 2000.
- [3] O. Gottesman and A. Gersho, "High Quality Enhanced Waveform Interpolative Coding at 2.8 kbps," *IEEE ICASSP'2000*, pp. 1363-1366, June, 2000, Turkey.
- [4] O. Gottesman and A. Gersho, "Enhanced Analysis-by-Synthesis Waveform Interpolative Coding at 4 kbps," *EUROSPEECH'99*, pp. 1443-1446, 1999, Hungary.
- [5] O. Gottesman and A. Gersho, "Enhanced Waveform Interpolative Coding at 4 kbps," *IEEE Workshop on Speech Coding Proceedings*, pp. 90-92, 1999, Finland.
- [6] O. Gottesman, "Dispersion Phase Vector Quantization For Enhancement of Waveform Interpolative Coder," *IEEE ICASSP'99*, vol. 1, pp. 269-272, 1999.

- [7] O. Gottesman and Y. Shoham, "Real-Time Implementation of High Quality 32 kbps Wideband Speech LD-CELP Coder," *EUROSPEECH'93*, 1993.
- [8] O. Gottesman and Y. Shoham, "Real-Time Implementation of High Quality Wideband-Audio LD-CELP Coder at 32 kbps Using Two-DSP Hardware," *ICSPAT'93*, Newton, MA, USA: DSP Associates, pp.1379-82 vol.2, 1993.