

David Henry FRIEDMAN

8823 Mountain Path Circle
Austin, TX 78759

U.S. Citizen

(H) 512 / 343-2027 (tel)
512 / 343-2082 (fax)
512 / 970-7089 (cellular – preferred)

Email: dhfx@realtime.net

LinkedIn public profile: <http://www.linkedin.com/pub/david-friedman/0/176/735>

Type of Position Sought: Senior systems-level engineering and/or design.

Areas of Expertise:

- **Digital Signal Processing** – development and low-level implementation in code and logic of algorithms for speech recognition, echo cancellation, FIR and IIR filtering, FFT time-frequency analysis, encoding/decoding, image analysis.
- **Software Development** – over 10 years in C under Linux, UNIX and Windows; knowledge of UNIX networking internals (socket interface); have used Visual C++, Visual Basic, Matlab, also Python and Java under Linux; developed Linux kernel modules; PHP and MySQL for Web-based applications; VHDL for digital design.
- **Data Acquisition and Analysis** – real-time measurement and event capture in industrial, neuromedical (spike sorting) and communication environments.
- **Training, Instruction, Documentation** – excellent presentation and communication skills; extensive university teaching and research experience.

Recent Professional History:**INDEPENDENT CONSULTANT****2009-present**

infiniRel Inc., Dallas, TX (Nov. 2009 & ongoing): Developed signal-processing algorithm for monitoring age of energy-storage capacitors in solar panel power inverters, based on observing only the input and output voltages and currents. Algorithm verified experimentally using actual inverter data.

SYMTX, INC., Austin, TX**2008-2009****Sr. Principal Engineer**

Member of Advanced Engineering Group in company supplying customized digitally-controlled electronic test systems to a wide variety of customers (aerospace, medical, telecom, etc.) Specific areas of responsibility include FPGA firmware, digital signal processing, design troubleshooting, also defining and implementing company-wide design standards.

CONTRACT CONSULTING & ACADEMIC TEACHING**2001-2007**

a) Symtx, Inc., Austin, TX (Apr. to Oct. 2007): Contractor on project involving system for capture and playback of Doppler radar data. Devised analog/digital scheme to accommodate signal with high dynamic range; programmed DSP down/upsampling as firmware for FPGA, using Altera DSP Builder and Quartus VHDL tools.

b) Plexon, Inc., Dallas, TX (Sep. 2005 to Oct. 2006): Contract researcher, working at company supplying electronic instrumentation to biomedical laboratories for neuroelectric research. Implemented algorithms for real-time multi-neuron spike separation in Matlab for demonstration purposes, using recordings of actual data; results compared favorably with those for off-line methods.

c) **Minco Technology Labs, Austin, TX (June 2004 to Aug. 2005):** Contract consultant to custom semiconductor packaging house. Migrated an internal application from legacy mainframe to Web platform using LAMP (Linux, Apache, MySQL, PHP) open-source software.

d) **University of Texas:** adjunct lecturer at Austin and Permian Basin (Odessa, TX) campuses.

NETHEARTBEAT, INC., Austin, TX

2000-2001

Senior Systems Architect, functioning as technical team lead

Design, implementation and development, in small startup company environment, of load-balancing solution for clusters of Web servers under Linux. Took responsibility for major system components coded in Java, also Linux kernel modules in C. Advocated systematic design procedures including writing of functional descriptions and formal design specifications. Led technical discussions to resolve design issues.

ANDREW CORPORATION, Austin, TX

1999-2000

Senior Engineer

Implementation and development of digital signal processing algorithms for cellular telephones and accessories, as member of small R&D facility doing advanced product development. Tools used include: Matlab with Simulink; Analog Devices ADSP-2181 DSP processor and associated development environment. Investigated solutions for implementing voice dialing, robust echo suppression for speakerphone adapter, etc.

SYMTX, INC., Austin, TX

1993-1999

Systems Architect

Design and implementation of custom systems in project-driven small-company environment, using primarily (then) Hewlett-Packard components (company was an H-P Channel Partner). Developed modular software (mainly in C) under MS-Windows and UNIX for system processors driving digital instrumentation in real time. Dealt directly with clients; advised on approaches to meet special requirements. Performed project-management functions; worked independently and as head of small teams (typically 4-5 junior engineers). Served as design leader on several projects including:

- Design and development of cable-modem testers, beginning with analysis of test requirements, design and lab-bench verification of test algorithms, software implementation of tests, and checkout using production prototypes.
- Generator of simulated deep-space telemetry signals to monitor receiver performance (bit error rate vs. SNR, etc.) for space-probe downlink. Complex modulation patterns digitally calculated and downloaded to real-time microwave synthesizer. Coded in C.
- Airborne data acquisition system involving merging of multiple avionics data streams at different rates, for modeling aircraft dynamic characteristics for design of flight simulators. Instrumentation consisted of VXI-interface modules controlled by C code running on real-time UNIX computer, with operator control via C++ application running on Windows laptop PC connected in client-server mode via Ethernet socket interface.

THE MITRE CORPORATION, Bedford, MA

1984-1992

Member of Technical Staff

Applied innovative digital signal processing approaches to speech and images. Proposed a novel spectral representation inspired by knowledge of neural encoding of sound in the ear. Implemented a computational model for wave transmission in the cochlea (inner ear) using the wave-digital-filter technique, to investigate possible effects of active nonlinearity in the ear (as evidenced by recent research in auditory physiology) in enhancing speech intelligibility in noise.

Education:

Ph.D. in E.E., The Johns Hopkins University, Baltimore

S.M. in E.E., Massachusetts Institute of Technology

B.E.E., Polytechnic Institute of Brooklyn (now Polytechnic Inst. of New York University), New York