

## Contact

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## Top Skills

Embedded Systems

Debugging

Digital Signal Processors

## Publications

Digital Signal Processing with the PIC16C74

A Configurable Microphone Array with Acoustically Transparent Omnidirectional Elements

Triggers and timing system for the SSRL 3 GeV injector

An open-source spherical microphone array design

Digital orbit feedback compensation for SPEAR

## Patents

Implantable, retrievable sensors and immunosensors

System And Method For Using Multiple Communication Protocols In Memory Limited Processors

Methods and Apparatus for Leak Detection

User-Configurable Sensor Platform

System and method for enhancing perceptual quality of low bit rate compressed audio data

# Darius Mostowfi

CTO at Sunn Musical Equipment Corp  
San Carlos, California, United States

## Summary

Electrical Engineering consulting services - specializing in Signal Processing and Audio System Development

## Experience

### Sigma Engineering

Principal Engineer/Owner

December 1999 - Present (24 years 3 months)

San Carlos, CA

Electrical Engineering consulting services focused on audio product development. Services include system architecture, schematics, board layout, firmware, DSP algorithm development, and EMC compliance testing. Depending on project size I can provide full end-end service, work as part of a team, or assemble a team of experts I have worked with for 20+ years. The following is a list of some of my clients and the projects I have worked on:

Roger Linn Design - AdrenaLinn, AdrenaLinn II, LinnStrument

Sennheiser Labs - low latency ADC/DAC for R&D, 3D mic array headset (co-developed with AuSim)

Blue Microphones - Yeti Pro (firmware)

Peavey - Link and HD Link - Analog and USB Audio Guitar Interfaces

BandLab - USB Audio Interface, Teisco Reissue Fuzz, Harmony Tube Amp Reissue, DSP based pedals

Mission Engineering - Expressionator, Gemini Amp Series, 529 Series USB pedalboard power supplies, NuTube Guitar and Bass pedals

Eko Devices - Core, Duo, and Core II Electronic Stethoscopes

Palo Alto Innovation - Doppler, Sandman Clocks

Mirion - MRVN BLE based Dosimeter (NASA project - for ISS/Mission to Mars Program)

Groover Glide - MIDI controller/gesture controlled synth (hardware)

LR Baggs - Soundscape Acoustic Guitar Pedal (Hardware, Firmware, DSP Algorithms)

## Spanner Product Development

### Principal Electrical Engineer

January 2022 - September 2022 (9 months)

Silicon Valley, California, United States

Spanner Product Development specializes in exquisitely crafted consumer products. Located in the heart of Silicon Valley, we provide our clients both the expertise for creating powerful development strategies and the experience to produce effective tactical solutions. With a thorough understanding of the demands of time to market, we drive time-tested development processes for the successful launch of great products.

## Cantaloupe Systems

### Senior Embedded Engineer

April 2010 - April 2011 (1 year 1 month)

## D2M

### Senior Electrical Engineer

2007 - October 2009 (2 years)

Technical lead for complex mixed signal embedded systems development. Design of medical, industrial, and consumer products. Analog and digital design for low power systems. Design of analog signal processing and control systems. Development and simulation of complex DSP algorithms. Design of analog and DSP based audio circuits and systems for research and consumer markets. Collaborate with ID and ME team members to support design efforts that require tight electromechanical integrations. Assist other engineers with solving difficult electrical and electronic engineering problems.

## Countryman Associates

### Principal Engineer

March 2009 - September 2009 (7 months)

Low power DSP board development, other new product development. Architecture, schematic capture, PCB layout, and firmware development.

## Sennheiser

### Consulting Engineer

2007 - 2007 (less than a year)

Designed low-latency ADC and DAC for DSP audio research platform. Tasks consisted of interface definition, ADC and DAC selection, architecture, CPLD specification, schematic capture, and supervision of PCB layout. Assisted internal engineering with system bring-up and final testing of system.

## Beatnik, Inc.

### Head of Research and Development

2007 - 2007 (less than a year)

Led development of a highly innovative speech coding algorithm for use on low-cost cell phones. Work involved developing, simulating and debugging signal processing algorithms in MATLAB and C. Performed audio testing of algorithm. Conducted user tests to evaluate quality of new algorithm vs. existing standards.

## Silver Medical

### Consulting Engineer

2005 - 2007 (2 years)

Developed technology for implantable stent with electronics sensor. Assisted founder with developing instrumentation to support scientific research. Worked with founder and patent firm to develop IP (2 patents issued).

## Fakespace Labs

### Consulting Engineer

2005 - 2006 (1 year)

Developed video driver board (DVI-LCD panel) for Virtual Reality Glasses. Designed hardware and wrote firmware for sequencing of LCD panel voltages. Designed multiple output (5) switching power supply for use with glasses.

## AuSIM

### Electrical Engineer

2004 - 2006 (2 years)

- Developed 8 channel microphone array pre-amplifier with ADAT interface for use in 3D audio applications. Defined architecture, oversaw PCB layout, and defined FPGA architecture. Implemented FPGA based SPI and PCI interface in Verilog using Altera FPGA.

- Designed wearable computer motherboard for ETX form factor. Assisted with Mechanical design of enclosure.

- Designed power supply for wearable system (powered by 20AH batteries)

- Developed DSP based mic array processor. Tasks included analog section design, DSP section design, and DSP coding for TI floating point DSP.

## Vertical Product Development

## Senior Engineer

1996 - 2006 (10 years)

Developed several technologies and products with the legendary Soudy Khan. Tasks included system architecture, schematic capture, board design, and firmware. Coordinated all electrical efforts. Managed external resources used in product development. Assisted Soudy with technology explorations and funding activities.

### List of Projects:

- Voice over IP Phone (best quality we've heard over a modem - ever). Development funded by investment from Wilson-Sonsini.

- Wireless pool and spa controller for Polaris Pool Systems

- Closed loop chemical dosing system for spa sanitation

- Key-sized biometric authentication device for Smart Tone

- Key-sized biometric device for Yuroka

- Watch and Keychain PDA with voice recognition interface.

- DSL based VoIP adapter for Limcom

- WiFi based VoIP phone for Limcom

- Table Pay - simple mesh network wireless payment device for restaurant industry.

## Recognition Systems

### Consulting Engineer

2004 - 2005 (1 year)

Consulting for embedded design work. Developed the following products for RSI's biometric access devices:

- 9600 baud modem for PSTN based remote control and monitoring of unit.

- Ethernet Card for network control and monitoring of unit (hardware and firmware)

- Solved various tough EMI issues with current and new products.

## Telecom Medical

### Consultant - Electrical Engineering

2004 - 2005 (1 year)

Developed several devices for research into new technology for cardiac patients. Later morphed into product for exercise and calorie tracking.

Worked with software and scientific team.

Tasks included analog and digital design, firmware, RF integration, and optimization of antenna for device.

Devices:

- belt mounted, accelerometer based device with bluetooth interface
- wireless "stethoscope" for remote heartbeat and breathing detection
- EKG "front-end" for heart rate tracking during studies

## Supercaller, Inc

### Chief Technology Officer

2002 - 2004 (2 years)

Designed original VoIP adaptor for company. Tasks included hardware design (DSP, micro, telephony ports), and some firmware for proof of concept system.

Led team of 10 engineers, headed up biz dev activities to form partnership between chip companies. Developed reference design which was demonstrated at Embedded Systems Conference. Developed core IP for company and worked with patent firm to develop several patents in the VoIP space.

## NewCore Networks

### VP of Engineering

2000 - 2001 (1 year)

Co-founded company. Worked with CEO on funding activities and general biz-dev activities. Secured over 2.5 M in funding. Led team of 12 engineers to develop product for trials.

Product was a telecommunications "blade" that ran 100 channels of G.729 voice compression/decompression.

## Smart Tone

### Senior Development Engineer (contract)

1994 - 2000 (6 years)

Developed several biometric security devices. Wrote spec for mixed-signal ASIC used in device. Brought-up ASIC and identified issues for next spin of IC. Worked closely with founder and server team. Presented technology to group at Bell Labs.

### **Stanford Synchrotron Radiation Lab**

#### **Electrical Engineer**

1989 - 1997 (8 years)

Electrical Engineer for 3GeV injector project. Design and installation of instrumentation and control systems. Closed loop DSP based control for beam stability. Design of high power/high voltage systems.

Custom FPGA/CPLD board design of digital down-converter for orbit feedback system using TMS320C40 DSP.

### **Spectrum Electronic Products**

#### **Design Engineer**

1989 - 1995 (6 years)

Development and sale of voice store-forward system for ham and military use.

Development of GPS based mapping system for Cal Department of Forestry "Helitack" operations.

### **Resultant Engineering**

#### **Founder/Engineer**

1983 - 1989 (6 years)

Co-founder of company that developed a digital radio controller for the ham and commercial radio market.

6502 based micro, custom ADPCM audio encode/decode for voice prompts, digitally controlled analog MUX for up to 4 radio systems.

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## **Education**

### **Santa Clara University**

MSEE, Signal Processing and Digital Communications · (1998 - 2000)

### **Stanford University**

Certificate, Signal Processing and Control Systems · (1996 - 1996)

### **California Polytechnic State University-San Luis Obispo**

BSET, Digital and Embedded Systems Design, Analog Audio Signal Processing · (1984 - 1988)

