

Jeremy M. Parker

Chelmsford, MA 01863 | jrs1@rj3.net | 508-572-7992 | [Portfolio](#) | [Linked-In Profile](#) | [Website](#)

Summary

- Expert in audio electronics, acoustics, and psychoacoustics, with 18 years experience, including consumer electronics, military/commercial applications, and the semiconductor industry
- Proven ability to problem-solve and innovate on not only the end-product design, but also the internal systems and tools needed to improve engineering efficiency
- Constantly striving for deep technical understanding by combining first-principles engineering with analytical tools and measured data, from circuit design to acoustic modeling
- Expert in developing high-precision audio/acoustic measurement systems to support the necessary accuracy and reliability of engineering data
- Emphasis on strong verbal and written communication for both collaboration with team members and reaching out across the organization
- Track record of high-level technical and strategic contributions, embracing an attitude of continuous improvement, attention to detail, and innovation

Work Experience

TDK-InvenSense, Inc. – Boston, MA

Nov 2013 – Present

Acoustic Design & Advanced Development

RESPONSIBILITIES

- Acoustic & system modeling
- Overall MEMS microphone design, predicting key performance metrics
- Design of MEMS validation hardware and corresponding data analysis software
- New technology development, and competitive product analysis
- Design of both customer-facing and internal technology demonstrations
- Bench/lab test development for new and existing products, including transducers, fixtures, PCBs, and software
- Continuous improvement of high precision acoustic measurement systems & techniques for microphone design validation, characterization, and ATE systems
- Continuous improvement of RFI/EMI immunity test capability, while driving DOEs, design, and simulation activities to improve RF robustness
- Contributing as an audio/acoustics expert, driving specific technical issues to closure, and supporting key customer technical discussions

Analog Devices, Inc. – Wilmington, MA

Apr 2011 – Oct 2013

Microphone Product Engineer

RESPONSIBILITIES

- Acoustic & system modeling
- Design and optimization of microphone for key performance parameters
- Characterization, qualification, and release to production of new MEMS microphones
- Bench/lab test development for new and existing products, including fixtures, PCBs, and software
- Development of high precision acoustic measurement systems & techniques for product development
- Creation of standardized RFI/EMI immunity test capability, while driving DOEs, design, and simulation activities to improve RF robustness
- Contributing as an audio/acoustics expert, driving specific technical issues to closure

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Work Experience

Continued

Gentex Corporation – Electro-Acoustic Products **Jun 2009 – Apr 2011** **Manchester, NH**

Electrical Engineer

RESPONSIBILITIES

- Electronics design for electret microphones and communication systems for ruggedized military and commercial applications
- Analog circuit design and simulation for low noise and low THD, including filtering/EQ, limiters/compressors, power amp topologies (class-D, amp ICs), control circuits, power supplies, and discrete circuit design
- Acoustic measurement and design for key microphone performance parameters and speech intelligibility criteria
- Microphone material and manufacturing process improvements
- Schematic capture, BOM generation, and product requirement documentation
- PCB design approval, optimized for signal integrity, EMC, and manufacturability
- In-house EMC and environmental testing, military & commercial standards
- Electronic component sourcing, testing, approval, as well as component vendor relations
- R&D efforts, analysis and qualification of new technologies and competitive products

PROJECT HIGHLIGHTS

- Chemical-Biological Protection Communication Unit – Next-generation, battery-powered, pilot-worn device for hearing and speaking through protective gear:
 - Identified acoustical/electrical performance targets needed for ANSI intelligibility requirement
 - Characterized the acoustical/electrical performance of all microphone and speaker transducers related to the product and overall system
 - Conceived and executed electrical/acoustic design improvements, outlined technical path to success for customer acceptance
 - Re-architected existing product to incorporate DSP, used to execute anti-feedback, EQ, dynamics processing, multiplexing, and noise-reduction techniques

Boston Acoustics, Inc. – Peabody, MA

Jun 1999 – Jun 2009

Electrical Engineer

RESPONSIBILITIES

- Electronics design for powered subwoofers, home theater systems, power amplifiers, multi-media computer speakers, and table-top radios; resulting in finished products that were successful in the consumer electronics marketplace, worldwide
- Specializing in analog circuit design for low noise and low THD, including filtering/EQ, limiters/compressors, power amp topologies (class-AB, class-D, amp ICs), control circuits, power supplies, and protection schemes
- Schematic capture, simulation, and BOM generation
- PCB design optimized for signal integrity, EMC, and manufacturability
- Thermal design, measurement, and complete system power testing
- System architecture, including cabling/interconnects, shielding, grounding schemes, and mechanical layout
- In-house EMC testing and troubleshooting for RFI, CRFI, ESD, Immunity, Safety, etc.

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Work Experience

Continued

- Communication and coordination with overseas manufacturing and engineering
- Electronic component sourcing, testing, approval, as well as component vendor relations
- R&D efforts and functional prototyping aligned with product roadmaps
- Project management relating to the electronics portion of overall product development
- Analysis and qualification of new technologies and competitive products

PROJECT HIGHLIGHTS

- **VPS-210 Powered Subwoofer** – True 500W class-D subwoofer amplifier for the high-performance VS Speaker Series:
 - Company-first 500W in-house design to market
 - Company-first Energy Star rated product
 - High-efficiency, low-distortion, scalable class-D power amplifier design
 - Project management of the electronics design, including overseas parts sourcing, IC vendor design collaboration, and EMC approvals
 - PCB design optimized for both class-D RFI considerations and audio performance
 - Low-noise analog circuit design for EQ, crossover, and VCA compressor

U.S. Patents

- “Integrated Package Forming Wide Sense Gap Micro Electro-Mechanical System Microphone...” US: 9439002 B2, Granted 9/6/2016
- Invention Disclosures Pending: “Microphone Distortion Reduction” , “Microphone ASIC Feedback Filtering” and “Robust Voice-bandwidth MEMS Microphone”

Education

National Instruments LabView “Core I” / “Core II”

Jul 2011

Kimmel-Gerke “Designing for EMC/SI” Seminar

Jul 2004

Grounding, Shielding, Power, Emissions, ESD, RFI & More

**University of Massachusetts
at Lowell – Lowell, MA**

Sep 1994 – Jun 1999

Bachelor’s of Electrical Engineering, Honors Program

Minor in Sound Recording Technology

Eta Kappa Nu, Tau Beta Pi Honor Societies

Graduated Magna Cum Laude, Dean’s List

Skills

Microsoft Office Suite, Matlab, Audio Precision Systems 2700 and APx555/525, Zygo NewView Optical Surface Profiler, LabView, PADS, Multisim, Teseq Compliance 5, Altium Designer, PCAD, AkAbak, PSpice, Test equipment (DSOs, spectrum analyzer, RF amplification, signal generators, current clamps, EMC equipment, power supplies), B&K and GRAS acoustic measurement equipment, Formlabs Form 1+ 3D-printer

Interests

Jazz piano/organ, composition, and recording, vintage keyboard instruments, speaker-building, carpentry, cycling, snowboarding, photography