

ETHAN BORDEAUX

296 Arlington St. Apt 2
Watertown, MA 02472

617.926.8355
ethan@dspmusic.org

WORK EXPERIENCE

DSP Software Engineer

Analog Devices

Wilmington, MA. www.analog.com, July 2000 to Present

Functioning as a DSP Software Engineer focusing on GSM cellular handsets. Primary duties include:

- Developing, debugging, and enhancing DSP algorithms in C and assembly language for the ADSP-218x series of Digital Signal Processors. Experience with past algorithms includes Speech Codecs, Channel Codecs, Real-Time Operating Systems, and low latency Debugging Frameworks.
- Writing PC console applications in C and Perl to support software development and custom build processes.
- Traveling to customer sites, often requiring long-term international travel or semi-permanent relocation, to integrate algorithms into their system and train customers on our build and development framework.
- Working with silicon designers in debugging early revisions of our baseband processors.
- Project Management of hardware tools used to debug our chipsets in a wireless application.

DSP Applications Engineer

Analog Devices

Norwood, MA. www.analog.com, June 1997 to July 2000

Functioned as a DSP Applications Engineer supporting our full catalog of DSPs. Primary tasks included:

- Providing phone and email support on our DSPs (including hardware, software, and development tools).
- Writing application notes, datasheets, and articles targeted for publication in industry trade magazines.
- Traveling to customer sites and tradeshow to give presentations on the technical merits of our DSPs.

SKILLS

Languages. C (PC and DSPs/embedded processors), ADSP-218x Assembly Language, and Perl. Experience with ARM7 Assembly Language, 6502 Assembly Language, Java/J2ME, C++, and Matlab M-files.

Build/Revision Control. Makefiles, PVCS, Perforce.

Hardware Debug. Oscilloscopes and Multimeters. Experience with Logic Analyzers.

Communication. Strong Technical Writing and Presentation skills. Experience with Project Management.

EDUCATION

Tufts University, www.tufts.edu, Medford MA, 1993-1997.

Bachelor of Science in Electrical Engineering, Minor in Mathematics.

Course Work included Digital Signal Processing (two classes plus Senior Project), Communication System Design, Digital Design, Data Structures, Discrete Math, Linear Algebra, and Probability and Stochastic Processes.

NON-WORK EXPERIENCE

Independent of my employment, I founded and developed two projects relevant to my overall experience and capability as a DSP and Embedded Software Engineer.

PSPSeq, www.dspmusic.org/psp, December 2005 to Present

- Developed a synthesis and sequencing application for writing music on the Sony PSP game system.
- Designed and programmed the entire application including software architecture, synthesizer and sequencer design, algorithmic and low-level optimizations, user interface and aesthetic, and documentation.
- Downloaded over 10000 times and actively used by musicians to create and perform their own music.

Chiclet and SynDevKit, www.dspmusic.org/chiclet.html, January 2001 to December 2004

- Developed a custom music synthesis and compositional environment for ADSP-218x DSPs using assembly language and Perl (SynDevKit).
- Recruited by and worked with the MIT Media Lab to create a custom ADSP-218x hardware platform (Chiclet).
- Won 3rd place at an Vida 6.0, an international artificial life artistic competition, using this hardware and software. (www.fundacion.telefonica.com/at/vida/paginas/v6/emusic.html)
- Participated in Boston Cyberarts 2003, showcasing music written by all developers on this platform.
- Performed using this platform at music and art venues throughout Boston and New York.

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PUBLISHED ARTICLES AND BOOK CONTRIBUTIONS

“Implementation of a Modern Adaptive Multirate (AMR) Codec for Cellular Systems Using a Multicore DSP”
Essentials of Moderns Telecommunications Systems: Chapter 10, May 2004, Artech House Publishers

“Solving AMR Speech Codec Porting Challenges”
Communications Systems Design, August 2004, www.commsdesign.com

“Advanced DSP Performance Complicates Memory Architectures In Wireless Designs”
Wireless Systems Design, April 2000 pages 20-24, www.wsdmag.com

“DSP System Integration” (cover story)
Communications System Design, December 1999 pages 23-28, www.commsdesign.com

“Choosing A DSP For Low Power Designs”
Electronic Products, April 1999 pages 59-60, www.electronicproducts.com

“Integrating Flash Memory In An Embedded Design” (co-authored with Stefan Hacker)
Circuit Cellar, April 1999 pages 12-19, www.circuitcellar.com

“Singling Out A DSP For Low Power Designs” (cover story)
Electronics Engineer Asian Sources, March 1999 pages 28-29, www.eetasia.com

“Designing Low Voltage Systems” (co-authored with Jaspreet Singh)
Multimedia Systems Design, October 1998 pages 46-51, (*magazine out of print*)

“Designers Face New Issues As Low-Voltage Levels Decline” (co-authored with Jaspreet Singh)
Wireless Systems Design, June 1998 pages 32-36, www.wsdmag.com

CONFERENCE PRESENTATIONS

“The High Speed Logger: A Window into a Real-Time System”
Analog Devices General Technical Conference, May 2007

“The Importance Of DSP System Integration For Portable And Power Sensitive Applications”
PCS Design Conference, September 1999

“Designing Low Voltage Systems” (co-authored/co-presented with Jaspreet Singh)
DSP World Design Conference, April 21-23 1998