

Jean-Marc Valin, Ph.D.

Email: jmvalin@jmvalin.ca

website: <http://jmvalin.ca/>

Profile

I hold a Ph.D. in Electrical Engineering with eight years academic and industrial experience in signal processing and its applications. Over the past ten years, I have been involved in multiple open source projects, including the Speex and CELT codecs, which are now used in dozens of products and applications, shipped to millions of customers. I enjoy environments that provide me with challenging problems and where I can perform applied research in parallel with development.

Education

Ph.D. Electrical Engineering, University of Sherbrooke 2002-2005

Mobile robotics lab (LABORIUS)

Thesis: "Auditory System For a Mobile Robot"

Internship: Kyoto University, Speech Media Processing Lab, Fall 2004

M.A.Sc. Electrical Engineering, University of Sherbrooke 2000-2001

Speech and audio research group

Project: bandwidth extension of narrowband speech

B.Eng. Electrical Engineering, University of Sherbrooke 1995-1999

Co-op program

Exchange program: University of Connecticut, Fall 1997

Work Experience

Mozilla Since 2011

Senior Platform Developer

- Standardization of the Opus codec
- Video codec research

Octasic Inc., Montreal 2008-2011

Software Lead Architect

- Designing efficient DSP algorithms for line echo cancellation, packet loss concealment and speech bandwidth expansion
- Managing the instruction set architecture (ISA) for Octasic's second-generation DSP architecture and updating the ALU and instruction decoder design
- Acting as "internal consultant" for a wide range of signal processing problems
- Optimizing DSP code for several speech codecs

CSIRO ICT Centre, Sydney (Australia) 2005-2008

Postdoctoral fellow, Networking Technologies Lab

- Designing an ultra low-delay audio compression algorithm
- Creating an efficient stereo acoustic echo cancellation algorithm
- Writing a SIP-based high-quality audio/video communication application
- Designing a 3D sound source localization system based on a microphone array

Consulting services 2003-2008

Consultant for projects related to the Speex speech codec

- Customizing Speex and optimizing Speex for ARM and Blackfin
- Designing and optimizing a noise suppression algorithm

Infospace Speech Solutions (Locus Dialogue), Montreal 2001
Acoustic Modelling Designer (speech recognition)
• Improving voice activity detection's (VAD's) robustness to noise
• Speeding up the company's speech recognition engine by a factor of three

Skills

Expertise: acoustic and line echo cancellation, speech and audio coding, speech enhancement, noise suppression, speech recognition, fixed-point signal processing, DSP implementation, DSP architectures
Programming languages: C, C++, Matlab/Octave
CPU/DSP architectures: x86, ARM, Blackfin, Octasic Vocallo

Other Professional Activities

Internet Engineering Task Force (IETF) Since 2008

Co-author of the Opus audio codec

- Standardizing technology from the SILK and CELT audio codecs

Co-chair of a Birds of a Feather (BoF) session

- Contributing to the creation of the IETF codec Working Group

Opus Since 2007

An open source audio codec providing high-quality full-band speech and audio (up to 48 kHz) at bit-rates ranging from 6 to 512 kbit/s

Co-author

- Designing a new class of low-delay coding algorithms

Speex Since 2002

An open source multi-rate speech codec optimized for voice over IP (VoIP)

Project leader and main author

- Designing a free CELP-based speech coding algorithm
- Converting the codec to fixed-point arithmetic
- Writing a speech enhancement module

Scientific journals and conferences Since 2001

Author

- Author of 10 journal papers and 37 conference papers (see <http://jmvalin.ca/publications.html>)

Reviewer

- Multiple conferences and journals

Scholarships and Awards

FQRNT Postdoctoral Scholarship B3 2006
NSERC ES B Postgraduate Scholarship (Ph.D.) 2002
FQRNT Doctoral Scholarship B2 (Ph.D.) 2002
NSERC ES A Postgraduate Scholarship (M.A.Sc.) 2000
Silver medal at the International Physics Olympiads (Canberra, Australia) 1995
First place at the Canadian Physics Olympiads (Montreal) 1995