Curriculum Vitae

Tamara Smyth
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Education

Stanford University, Stanford, CA.
Ph.D., Computer-Based Music Theory and Acoustics, April 2004.
Ph.D. minor, Electrical Engineering.

New York University, New York, NY.
M.Mus., Music Technology, September 1998.

McGill University, Montreal, QC.
B.Mus., Piano Performance and Computer Applications to Music (Joint Honours), September 1996.

Work Experience

November 2004-current: **Assistant Professor**.
School of Computing Science, Simon Fraser University, British Columbia, Canada.

April 2004-November 2004: **Technical Director and Lecturer (Musical Acoustics)**.
Center for Research in Music and Acoustics (CCRMA), Department of Music, Stanford University, Stanford, CA.

September 2003-April 2004: **Audio software consultant**.
Universal Audio Inc., Santa Cruz, CA.

September 1998-2003: **Teaching and Research Assistant**.
CCRMA, Department of Music, Stanford University, Stanford, CA. Activities include teaching lab component of classes, tutoring students and assisting with development of courses in music and digital signal processing applied to music and audio.

Summer 2000 and 2001: **Audio Software Consultant**.
autodesk*/discreet* (formerly Discreet Logic), Montreal, QC.

Summer 1999: **Researcher in Computer Music**.
IBM Research, T.J. Watson Research Center, Yorktown, NY. Activities include music and audio technology research, audio software development and assisting with music concerts at the Computer Music Center.

September 1997-September 1998: **Software Developer**.
Discreet Logic, Montreal, QC. Activities include developing audio software and integrating audio subsystem into special effects software products.

Summer 1997: **Student Consultant**.
Academic Computing Facility, Arts and Technology Group, New York University, New York, NY. Activities include maintenance of multimedia equipment and advising students on a wide range of multimedia and audio software.

September 1993-May 1994: **Choir Director**.
St. Patrick's Parish, Montreal, QC.

Teaching Experience

Course Instructor:

CMPT 318: Fundamentals of Computerized Sound, SFU (new undergraduate course both developed and taught), *Winter semester 2005 and 2006.*
CMPT 889: Computational Modelling for Sound Synthesis, SFU (new graduate course both developed and taught), *Fall semester 2005.*
MUS 150: Musical Acoustics, Stanford University (undergraduate course both developed and taught), *Spring quarter 2004.*

Teaching Assistant/Lab Instructor (Stanford University):

MUS 320: Introduction to Digital Audio Signal Processing, *Autumn 2002.*
MUS 151: Psychophysics and Cognitive Psychology for Musicians, *Spring 2001.*
MUS 220b: Synthesis Techniques, Compositional Algorithms, Psychoacoustics and Spatial Processing, *Winter 2001.*
CS 377b / MUS 250a: Computer-Human Interaction Technology, *Autumn 2000.*
MUS 22: Elements of Music II, *Spring 2000.*
MUS 21: Elements of Music I, *Winter 2000.*
MUS 20: Jazz Theory, *Autumn 1999.*

Awards and Honours

Discovery Grant. Natural Sciences and Engineering Research Council of Canada (NSERC), *Real-time Interactive computer Simulations of Acoustic Systems*, 2005-2008.

President's Research Grant. Simon Fraser University. *Analysis of the design and playing techniques of Southeast Asian Reed Instruments*, 2005-2006.
Invited Speaker. 152nd Meeting of the Acoustical Society of America, November—December 2006, Honolulu, Hawaii (forthcoming).
Invited Speaker. 148th Meeting of the Acoustical Society of America, November 2004, San Diego, California.
Invited Speaker. 146th Meeting of the Acoustical Society of America, November 2003, Austin, Texas.
Student Paper Award Competition, Second Prize. 144th Meeting of the Acoustical Society of America, December 2002, Cancun, Mexico.
Stanford University Fellowship, 1998-2003.

Other Activities

Co-organizer (with Julius O. Smith) of special session "Virtual Musical Instruments" at the Acoustical Society of America (ASA)/Canadian Acoustical Association (CAA), Vancouver meeting, May 2005.
Invited Speaker. UBC Physics and Astronomy Dept Colloquium, April, 2005, Vancouver, British Columbia.
Radio Guest on *Bunny Watson* hosted by Bill Richardson, CBC Radio, December 2004.
Regular reviewer for the IEEE Transactions on Speech and Audio Processing.
Reviewer (2006) for the International Conference on Digital Audio Effects (DAFx).
Regular reviewer and Paper Committee Member (2006) for the International Computer Music Conference (ICMC).
Translator (French to English) of published technical papers.
Audio Group Member. Center for Advanced Technology, Media Research Lab, New York University, New York, NY, 1996-1997.

Publications

[1] Tamara Smyth and Jonathan Abel, "Observing the effects of waveguide model elements in acoustic tube measurements," Invited paper, to be submitted to the *152nd Meeting of the Acoustical Society of America (ASA)*, November—December 2006. In progress.

[2] Tamara Smyth and Jonathan Abel, "Reconciling model and measurement in simple wind instrument structures," Submitted to *International Conference on Digital Audio Effects (DAFx)*, September 2006. In review.

[3] Tamara Smyth, Tom Smyth, and Arthur Kirkpatrick, "Exploring the virtual reed parameter space using haptic feedback," Invited paper, submitted to *IEEE International Workshop on Multimedia Signal Processing*, October 2006. In review.

[4] Tamara Smyth, "A handheld acoustic filter bank for musical control," in *Proceedings of NIME 2006*, Paris, France, June 2006, Conference on New Instruments for Musical Expression.

[5] Tamara Smyth, Jonathan Abel, and Julius O. Smith, "A generalized parametric reed model for virtual musical instruments," in *Proceedings of ICMC 2005*, Barcelona, Spain, September 2005.

[6] Tamara Smyth, Jonathan Abel, and Julius O. Smith, "Musical effects of the digital pressure-controlled valve," San Diego, California, November 2004, Acoustical Society of America, presentation by invitation.

[7] Tamara Smyth, Jonathan Abel, and Julius O. Smith, "The feathered clarinet reed," in *Proceedings of the International Conference on Digital Audio Effects (DAFx'04)*, Naples, Italy, October 2004.

[8] Gamhewage C. de Silva, Tamara Smyth, and Michael J Lyons, "A novel face-tracking mouth controller and its applications to bioacoustic models," in *Proceedings of NIME 2004*, Hamamatsu, Japan, June 2004, International Conference on New Interfaces for Musical Expression.

[9] Tamara Smyth, *Applications of Bioacoustics to Musical Instrument Technology*, Ph.D. thesis, Stanford University, April 2004.

[10] Tamara Smyth and Julius O. Smith, "A musical controller based on the cicada's efficient buckling mechanism," *Journal of New Music Research*, December 2003.

[11] Tamara Smyth, Jonathan Abel, and Julius O. Smith, "Feathered collisions in beating reed simulation," Austin, Texas, November 2003, Acoustical Society of America, presented by invitation.

[12] Tamara Smyth, Jonathan Abel, and Julius O. Smith, "Discrete-time simulation of air-flow cut-off in pressure-controlled valves," in *Proceedings of the IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA'03)*, New Paltz, New York, October 2003.

[13] Jonathan Abel, Tamara Smyth, and Julius O. Smith, "A simple, accurate wall loss filter for acoustic tubes," in *DAFX 2003 Proceedings*, London, UK, September 2003, International Conference on Digital Audio Effects.

[14] Tamara Smyth, Jonathan Abel, and Julius O. Smith, "The estimation of birdsong control parameters using maximum likelihood and minimum action," in *Proceedings of SMAC 03*, Stockholm, Sweden, August 2003, Stockholm Music Acoustics Conference.

[15] Tamara Smyth and Julius O. Smith, "The syrinx: Nature's hybrid wind instrument," in *CD-ROM Paper Collection*, Cancun, Mexico, September 2002, Pan-America/Iberian Meeting on Acoustics.

[16] Tamara Smyth and Julius O. Smith, "The sounds of the avian syrinx—are they really flute-like?," in *DAFX 2002 Proceedings*, Hamburg, Germany, September 2002, International Conference on Digital Audio Effects.

[17] Tamara Smyth and Julius O. Smith, "Creating sustained tones with the cicada's rapid buckling mechanism," in *Proceedings of NIME 2002*, Dublin, Ireland, May 2002, Conference on New Instruments for Musical Expression.

[18] Patricio De la Cuadra, Tamara Smyth, Chris Chafe, and Han Baoqiang, "Waveguide simulation of neolithic Chinese flutes," in *Proceedings of ISMA 2001*, Perugia, Italy, September 2001, International Symposium on Musical Acoustics.

[19] Tamara Smyth and Julius O. Smith, "Applications of bioacoustics in physical modeling and the creation of new musical instruments," in *Proceedings of ISMA 2001*, Perugia, Italy, September 2001, International Symposium on Musical Acoustics.

[20] Tamara Smyth and Julius O. Smith, "A musical instrument based on a bioacoustic model of a cicada," in *Proceeding of ICMC 2001*, Havana, Cuba, September 2001, International Computer Music Conference.