Jennifer Hsu

University of California, San Diego
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Education

Doctor of Philosophy in Computer Music   *September 2013 – (in progress)*
University of California, San Diego
La Jolla, CA

Master of Arts in Music, Science, and Technology   *September 2011 – June 2013*
Stanford University
Stanford, CA

Bachelor of Arts in Cognitive Science   *August 2007 – May 2011*
Bachelor of Arts in Computer Science
University of California, Berkeley
Berkeley, CA

Research interests

Rhythmic and structural statistical analysis of musical audio
Using statistical analysis of music for audio effects and music creation
Digital audio signal processing, digital audio effects

Employment

Research Intern   June *2015 – September 2015*
Gracenote, Media Technology Lab, Emeryville, CA
Supervisor: Gregoire Tronel, Phillip Popp
    Develop a downbeat estimation algorithm

Research Assistant   September *2014 – (in progress)*
Center for Research and Learning (CREL), UC San Diego, CA
Supervisor: Shlomo Dubnov
    Develop algorithms to synthesize music from semantic emotional descriptors
    Develop algorithms for identification of repeated musical pattern
    Research in guided and structured musical improvisation

Research Intern   *July 2014 – September 2014*
Jawbone, Algorithms Group, San Francisco, CA
Supervisor: Stuart Crawford
    Research musical emotions in relation to acoustic features, skin conductance, and facial expressions
    Design and implement an experiment to predict emotions experienced during music listening
    Apply machine learning algorithms to experimental data

Research Intern   *June 2012 – August 2013*
Dolby Laboratories, Advanced Technology Group, San Francisco, CA

Supervisor: Poppy Crum
    Design and implement subjective tests for audio and video assessment
    Analyze auditory perceptual test results to improve post-processing
    Obtain quantitative measures from subjective listening tests to improve spatialization algorithms
    Design and implement tools for internal perceptual testing administrators

Research Assistant   *January 2010 – May 2011*
Affective Cognitive Neuroscience Laboratory, UC Berkeley, CA
Supervisor: Sonia Bishop
    Prescreen participants for behavioral functional magnetic resonance imaging (fMRI) studies
    Assist in design of experimental stimuli
    Write programs to extract relevant information from experimental results

Teaching experience

Teaching Assistant, University of California, San Diego, CA
Audio Production: Mixing and Editing *(in progress)*   *January 2015 – March 2015*
Audio and MIDI Studio Techniques III   *April 2014 – June 2014*
Audio and MIDI Studio Techniques II   *January 2014 – March 2014*
Audio and MIDI Studio Techniques I   *September 2013 – December 2013*

Publications

Cheng-i Wang, Jennifer Hsu, and Shlomo Dubnov, "Music pattern discovery with Variable Markov Oracle: A Unified Approach to Symbolic and Audio Representations," in *Proceedings of the 16th International Society for Music Information Retrieval Conference,* Málaga, Spain, October 2015, pp. 176-182.

Jennifer Hsu and Tamara Smyth, "Specifying sounding frequency of a voice model during live interactive saxophone performance," in *Proceedings of the 41st International Computer Music Conference,* Denton, Texas, September/October 2015, pp. 182-185.

Selected projects

sequencer: an audio/visual/touch-interaction installation for the   September *2015 – December 2015*
  Immersive Lab (immersivelab.zhdk.ch) presented at swissnex
  San Francisco Immersive Lab at Gray Area (November/December 2015)
Supervisor: Katharina Rosenberger

MB Delay: an FFT-based multiband delay VST plug-in   *April 2014 – June 2014*
Supervisor: Tom Erbe

Vowel Morph: a physical model of the vocal tract and glottal folds   *April 2014 – June 2014*
  with the ability to morph between vowels in PureData (Pd)
Supervisor: Tamara Smyth

Perceptually-based concatenative synthesis using source and   *September 2013 – December 2013*
    target audio
Supervisor: Shlomo Dubnov

Granny Grains: a granular synthesis VST plug-in   *September 2013 – December 2013*
Supervisor: Tom Erbe

Live laptop performance system   *January 2013 – April 2013*
Supervisor: Chris Chafe

Reverse reverberation VST plug-in in 'real-time' *September 2012 – December 2012*
Supervisor: Jonathan Abel

Audio morphing in the spectral domain *April 2012 – June 2012*
Supervisor: Julius O. Smith

hearHere: an iPhone app that lets you listen to the world around *January 2012 – April 2012*
   you as music
Supervisor: Ge Wang

Auditory filter banks *January 2012 – April 2012*
Supervisor: Julius O. Smith

Volunteer activities

Paper abstracts reviewer *December 2015*
Intercultural Music Conference and Conference 2016

Organization committee member *January 2013 – April 2013*
Performer
CCRMA Modulations, an annual presentation of live electronic music, dance,
   and interactive sound installations by students, professors, and guests
ccrma.stanford.edu/events/modulations
Aid in event decisions including venue, marketing, choosing performers, planning set times
Present a live electronic music set

Music Mixer *September 2008 – present*
for various Northern California hip-hop dance teams including:
   Main Stacks: *mainstacksdance.wordpress.com*
   Senior Stacks
   SF Funksters: *funkanometry.org*

Software skills

Programming: C/C++, Matlab, Python, Objective-C/iOS
Audio: Ableton Live, Pd, ChucK,

References

Available upon request