

JORDAN HOCHENBAUM

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Education

Ph.D *New Zealand School of Music, Victoria University Wellington, New Zealand* (2009 - in progress)

Dissertation: "L'Arte Di Interazione Musicale: Affording Musical Expressivities through Multimodal Techniques"

B.F.A *California Institute of the Arts, Valencia CA* (2006-2009)

Musical Arts Program, graduated with High Honors CalArts

Work & Professional Development

California Institute of the Arts *Professor in Music Technology: Interaction, Intelligence & Design program* (October 2011 - current)

KarmetiK Research Labs (October 2009 - current)

Multimedia researcher, clients include: Harman Intl. Industries / AKG, Music Mastermind

Nokia Research Center Hollywood (December 2009 - March 2010)

Mobile Experience Intern (Interactive Location-based media, large-scale multitouch design and interaction, interactive mobile phone software design)

FlipMu (2009 - current)

Co-founder of FlipMu Interactive Design, Sound and Technology (custom hardware / software solutions for interactive installation, live performance and multimedia)

Research Assistant, Sonic Arts NZSM (2009 - current)

Research projects including Multi-touch interfaces for musical performance, music information retrieval and musical robotics.

Ah! Opera / No Opera (Summer 2009)

Development of AhText application and custom multi-touch hardware for Ah! Interactive Opera, Redcat/Walt Disney Theatre, Los Angeles California

Chicago Recording Company (Summer 2007)

Musical recording studios and audio/video post-production

Teaching Experience

California Institute of the Arts: Music Technology *Professor* (October 2011 - current)

CS268 - Reproduction of Sound - Audio Production and Mixing Techniques (Fall 2011)

MI430 - Grids, Beats and Groups - Live electronic music & networked performance (Fall 2011 / Spring 2012)

MI400 - Focused Topics in Music Technology: *Visualizing Sound* - Live audio responsive / generative visuals, projection mapping & VJing (Spring 2012)

MI621 - *C++ Programming for the Advanced Electronic Musician* - Masters level C++ programming and Audio plugin design (AU/VST/RTAS) (Spring 2012)

M002 - Introduction to Machine Learning (Spring Workshop)

New Zealand School of Music, Victoria University - Teaching Assistant (2009 - current)

CMPO 110 - Introduction to programming for musicians

CMPO 211 - Music Programming for Live Electronics

CMPO 311 - Interactive Multimedia in Processing

CMPO 381 - Interface Design for Live Electronics

California Institute of the Arts - Guest Workshop (Spring 2011)

M002 - Advanced production techniques in Ableton Live

California Institute of the Arts - Teaching Assistant (Fall 2008 - Fall 2009)

MI220 - Advanced Musical Programming Techniques

MI330A&B - Interface Design for Music and Multimedia Expression

Engineering Skill & Research Experience

Hardware, Software and Web Development

Programming: C++, Processing, openFrameworks, JUICE , Java, iOS (iPhone/iPad), Objective-C, QT, HTML, CSS, etc.

Microprocessor: Atmel, Arduino

Operating systems: Mac, Windows, Linux

Multimodal Machine Learning & Musicianship

Computational Ethnomusicology, Gesture retrieval, Automatic Player / Performer Recognition, Technique & Performance Metrics, Automatic Transcription

Interface Design

Bricktable: 50-inch Musical Multi-Touch Interface

SmartFiducial: Multimodal fiducial object for enhanced tangible tabletop surface interaction

Arduinome: USB Midi/OSC 8x8 button-pad music controller

Robotics

Tammy: Solenoid actuator powered marimba robot

Awards / Scholarships / Grants

PGSA Research Excellence Award Victoria University Wellington New Zealand

Given to select post-graduate students at Victoria University to recognize and reward excellent research (\$3000)

Victoria PhD Scholarship Victoria University Wellington New Zealand

Academic-merit based scholarship from Victoria University to encourage strong PhD research within the university (\$20,000 stipend plus Full Tuition for the tenure of PhD)

Best Poster Presentation 10th International Society for Music Information Retrieval Conference, Kobe, Japan, October 2009.

Books

Hochenbaum, Jordan, Joshua Noble, and Martin Evans. *Arduino in Action*. Manning Publications, 2012. Print. *To Appear*.

Journal Papers

Vallis, O., Diakopoulos, D., Hochenbaum, J., Kapur, A. *Building on the Foundations of Network Music: exploring interaction contexts and shared robotic instruments*. *Organised Sound*, 17(1). *To Appear*.

Kapur, A., Darling, M., Diakopoulos, D., Murphy, J., Hochenbaum, J., Vallis, O., Bahn, C. *The Machine Orchestra: An Ensemble of Human Laptop Performers and Robotic Musical Instruments*. *Computer Music Journal*, Volume 35, Issue 4, 2011.

Referred Publications

Vallis, O., Hochenbaum, J., Murphy, J., Kapur, A. *The Chronome: A Case Study in Designing New Continuously Expressive Musical Instruments*. In *Proceedings of the Australasian Computer Music Conference (ACMC)*. Auckland, New Zealand, July 2011.

Hochenbaum, J., Kapur, A. *Adding Z-Depth and Pressure Expressivity to Tangible Tabletop Surfaces*. In *Proceedings of the International Conference on New Interfaces for Musical Expression*, Oslo, Norway, May-June 2011.

Kapur, A., Darling, M., Murphy, J., Hochenbaum, J., Diakopoulos, D., Trimpin, *The KarmetiK NotomotoN: A New Breed of Musical Robot for Teaching and Performance*. In *Proceedings of the International Conference on New Interfaces for Musical Expression*, Oslo, Norway, May-June 2011.

Hochenbaum, J., Kapur, A., and Wright, M., *Multimodal Musician Recognition*. In *Proceedings of the International Conference on New Interfaces for Musical Expression*, Sydney, Australia, June 2010.

Hochenbaum, J., Vallis, O., Diakopoulos, D., Murphy, J., and Kapur, A., *Designing Expressive Musical Interfaces for Tabletop Surfaces*. In *Proceedings of the International Conference on New Interfaces for Musical Expression*, Sydney, Australia, June 2010.

Vallis, O., Hochenbaum, J., and Kapur, A., *A Shift Towards Iterative and Open-Source Design for Musical Interfaces*. In *Proceedings of the International Conference on New Interfaces for Musical Expression*, Sydney, Australia, June 2010.

Kapur, A., Darling, M., Wiley, M., Vallis, O., Hochenbaum, et al., *The Machine Orchestra*. *Proceedings of the International Computer Music Conference*, New York City, New York, June 2010.

Hochenbaum, J., Vallis, O. 2009. *Bricktable: A Musical Tangible Multi-Touch Interface*. In Proceedings of the 2009 Berlin-Open Conference. Berlin, Germany.

Hochenbaum, J., Vallis, O., Diakopoulos, D., Akten, M., Murphy, J.,. 2009. *Musical Applications for Multi-Touch Interfaces*. Workshop on Media Arts, Science, and Technology. (January 29-30, 2009). MAST. UCSB, Santa Barbara, CA.

Diakopoulos, D., Vallis O., Hochenbaum J., Murphy, J., Kapur, A. 2009. *21st Century Electronica: MIR Techniques for Classification and Performance*. Proceedings of the 2009 International Society on Music Information Retrieval Conference. October 2009. Kobe, Japan.

Vallis, O., Hochenbaum, J., and Kapur, A. 2008. *Extended Interface Solutions for Musical Robotics*. In Proceedings of the 2008 Tenth IEEE International Symposium on Multimedia - Volume 00 (December 15 - 17, 2008). ISM. IEEE Computer Society, Washington, DC, 495-496.