

<b>Institution: Keele University</b>
<b>Unit of Assessment: D35 Music, Drama, Dance and Performing Arts</b>
<b>Title of case study: Creative Practice in Music Technology</b>
<p><b>1. Summary of the impact</b></p> <p>Fischman's work has an on-going worldwide impact on cultural life, creating, inspiring and supporting new forms of artistic expression through public performance and broadcast of his compositions. His search for new aesthetic approaches and the resulting software tools (e.g. <i>AL and Erwin</i>) have offered new ways of musical thinking to composers beyond the academy around the globe, contributing to their personal and professional development through further exploration of such tools and approaches. Together with his writings, these have informed the design and delivery of curriculum and syllabi in other institutions worldwide. The nature of the subjects tackled in some of his compositions has also contributed to new interpretations of cultural heritage.</p>
<p><b>2. Underpinning research</b></p> <p>The underpinning research has been Fischman's work in composition and creative music technology. His work has focused on electro-acoustic and multimedia compositions along with the development of compositional tools in the form of music software. During the last few years, he has expanded these interests into the audiovisual domain and the use of gestures to operate digital controllers in conjunction with multi-channel composition, within a long term strategy for the realisation of <i>structured interactive immersive musical experiences</i>, in which users advance at their own pace, choosing their own trajectory through a musical work but having to act within its structure, rules and constraints. Research insights and findings focus on three interlinked musical areas: 1) composition, 2) electronic media theory and 3) software development:</p> <ol style="list-style-type: none"> <li>1) Compositional research focuses on new aesthetic approaches to acoustic, electroacoustic, mixed and live electronics resulting from:       <ol style="list-style-type: none"> <li>i. The application of advanced signal processing techniques to the generation of musical material.</li> <li>ii. The establishment of aesthetic links between electronic and non-electronic sounds.</li> <li>iii. The integration of apparently disparate inter-cultural materials into coherent musical expression.</li> </ol> </li> <li>2) Insight gained through the investigation of compositional processes has contributed to the formulation of more general issues in electronic media aesthetic theory and practice, as well as analytical methodologies for the understanding of the former's structure and discourse.</li> <li>3) Fischman has created new software tools to fulfil the technical needs for the realisation of new aesthetics.</li> </ol> <p>Fischman began this work during his postgraduate research at York University (1985-88) and it has since been supported at Keele University during his employment through QR-funded sabbatical leave (1993, 1996, 2001, 2005, 2009, 2013), two AHRC research leave fellowships (2000-1, 2012), and on-going financial support by the Humanities RI for conference attendance, the provision of specialist hardware and software, and publications (e.g. audio recording and production). Fischman has been employed at Keele since as Lecturer, Senior Lecturer and Reader, and is now Professor.</p>
<p><b>3. References to the research</b></p> <ol style="list-style-type: none"> <li>1. Fischman R, 2007. <i>¿Te Acuerdas Hijo? (Do You Remember Son?)</i>, audiovisual composition (2006, 16:38).       <ul style="list-style-type: none"> <li>• Finalist at 34th Bourges International competition, 2007.</li> <li>• Selected work at 10 peer reviewed international conferences/festivals from March 2007-January 2011, and specific requests by peers for the performance of this work at festivals/concerts globally (including in Germany, Australia, Venezuela, and Peru) from Nov 2007 – Dec 2010.</li> </ul> </li> </ol>

## Impact case study (REF3b)

- Performances and/or discussion of the work internationally (including in Portugal, Mexico, USA, and Argentina) resulting from personal invitations to conferences/festivals.
  - Also published as: DVD video, Visual Music Collection, NorthEastern University, Boston, USA.
2. Fischman R, 2012. ¡A Que No Me Quemias! (Bet you Can't Burn Me!), composition for bass clarinet and digital audio (2007, 12:30). In eMBODYments, Music for Bass Clarinet and Electronics, Centaur, CRC 3265.
    - Commissioned by Bass Clarinetist Marco Antonio Mazzini.
    - Selected work at peer reviewed International Computer Music Conference 2009, Lion d'Or, Montreal, Canada, 16/8/09. Krista Martynes.
    - Specific requests for the performance of this work at Escuela Superior de Musica y Danza, Monterrey, Mexico, 13/4/11 and Centro de las Artes, Monterrey (15/5/13). Robert Hoit.
    - Performed/broadcast internationally, including in the UK, Macedonia and in South America.
  3. Portfolio: Application of Mathematical Models to the Generation of Organic Musical Structure and Discourse in Composition (includes article, published paper, acousmatic composition and software). Arts and Humanities Research Board Research Leave Scheme Award AN6433/APN11395. 25/9/2000 – 8/6/2001. Total value: £13,300. Representative item: Fischman R. 2002. AL - Algorithmic Composition Graphics Environment - and ERWIN - COM plug-in for granular synthesis using the statistical distributions obtained from Schrödinger's quantum mechanics equation for a potential with spherical symmetry (C++/Windows/DirectX). Distributed under the GNU general public license as a download. Also distributed by the Composers' Desktop Project: Chippenham, UK and available in public domain software websites (see section 4, item 2).
  4. Fischman R, 2000. A Tutorial Survey of "Classic" Synthesis Techniques. In R. Boulanger (ed.), The Csound Book. MIT Press: Cambridge, MA, 223-60.
  5. Fischman R. 1997. The Phase Vocoder: Theory and Practice. *Organised Sound*, 2(2): 127-45. Audio examples in Organised Sound 2(3) CD. Peer reviewed. DOI: 10.1017/S1355771897009060
  6. Fischman R. 1997. Analysis of Crosstalk, a work by Michael Vaughan. *Organised Sound*, 2(3): 225-51. Peer reviewed.

### 4. Details of the impact

#### 1. Impacts on public audiences:

Public performances, broadcasts and recordings of musical compositions have had an impact on performance bodies, and concert and festival programmes, attracting media attention, including commentaries by enthusiastic audiences who have been able to experience Fischman's compositions directly. This has led to the creation of cultural capital, enriching and expanding the lives, imaginations and sensibilities of such audiences. For instance, *¿Te Acuerdas Hijo?* is regularly performed to diverse viewers worldwide at concerts (since 2008), and excerpts have been published in non-academic venues accessed by the general public, e.g. Animation World Magazine and Network Television (Section 5, item 1). Inclusion of Fischman's works in commercial recordings, curated online channels (e.g. the YouTube channel *Clásicos Peruanos*, which features a historic repertoire of significant Peruvian classical composers) and archives (e.g. Daniel Langlois Foundation Latin American Electroacoustic Music Collection, Digi-Arts UNESCO knowledge portal) is testament to the significance of his compositions to a broader public: Fischman's output has been recognised as part of the historical patrimony of Peruvian composition as evidenced in the collections above. Furthermore, his compositions have enabled audiences to gain new interpretations of cultural heritage: 'influences from dance forms in Fischman's works have involved the reconstruction of a basic paradigm of a rumba polyrhythm in his acousmatic work *Kol HaTorr* and the "proprioceptive" characteristic of relating musical gesture to physical movement, resulting in a particular kind of expression that is linked to the experience of dancing genres. This

latter influence cannot be considered as a direct reference to any particular genre, but instead, generative of a Latin American flavour personal to Fischman's own musical language' (Blackburn, 2010, Section 5, item 2). For instance, a new interpretation of the integration of Afro-Peruvian folklore in *¡A Que No Me quemas!* has been disseminated thanks to performances worldwide, including the *London Sinfonietta* Latin American tour, featuring in two high profile Mexican festivals: *Visiones Sonoras*, Morelia (full house at MUAC hall, capacity 220) and *Festival Internacional Cervantino*, Guanajuato (full house at Auditorio de Minas, capacity 420), described as 'the most important festival in Latin America' and 'one of the premier arts and cultural festival in Mexico and Latin America'. This prompted media attention in the form of interviews (Radio of the State of Michoacán, México. Interviewed by Yasmin David in *Reflejos*, 27/10/11 and Radio of the National Autonomous University of Mexico) and reviews (e.g. Notimex and Globedia): 'audiences were enticed to appreciate different musical aesthetics through sound exploration and erratic rhythms'. Following the 2009 *Ohrid Summer Festival* in Macedonia (full house, Museum of the City of Skopje hall, capacity ca. 300), the music critic Dr. Marko Kolovski wrote in the *Skopje Summer Festival Bulletin* (circulation 50,000) and *Morning News* (circulation 100,000): 'it was clear that Rajmil Fishman is a master of his art'. Another illustration of this impact is found in the integration of traditional Jewish and Middle Eastern musical materials with contemporary art music and electronics, providing a contemporary interpretation of the expulsion of Adam and Eve from the Garden of Eden in the context of Middle Eastern conflict; as realised in *Ets HaDa'at*. Its premier at *HaTeva* (full house, Museum of the City of Skopje hall, capacity ca. 120), *Contempo festival* (Tel-Aviv, 2009) prompted a full page interview in Israeli broadsheet *Haaretz*, (*Galeria* arts supplement, 20/02/2009: article No. 148498, 770 words, including photos - weekend circulation: 100,000 - Section 5, item 3) and a follow-up review: 'Ensemble Meitar performed subversive, modern and political music in front of an audience that saturated the hall in Hateiva Studio. The works *Ets HaDa'at* by Fischman, and *Amalek* by Arel Paz and Ran Kasmi Ilan brought to the fore the voice of conquered and occupied Palestinians' (Noam Ben Zeev, *Haaretz*, 23/2/2009).

## 2. Opening new ways of creative thinking and professional practice:

Through published writings referenced in professional composer websites and the distribution of developed software (e.g. free through General Public License), composers, time-based artists and digital developers have benefited from Fischman's research insights (sample evidence: correspondence with software user, Section 5, item 4, 29/8/2013). From 2002, *AL & ERWIN* software has been downloaded extensively and used by professionals, students and general members of the public: the number of registered downloads surpassed 4800 by 2011 (Section 5, item 5), in addition to over 3500 additional downloads from other public websites (Section 5 item 6). It was reviewed in the popular magazine *Electronic Musician*: 'Rajmil Fischman's new software takes a unique approach to computing the data needed to create sound using granular synthesis... Whether you mastered physics in school or not, give Al and Erwin a try.' (Section 5, item 7). Fischman's writings are recommended reading in professional and self-teaching web resources (2008-present): e.g. *The Phase Vocoder Theory and Practice* in *ralemagik.com* and E Giordani's Italian translation downloadable as a PDF in Italian (Section 5, item 8): together with the article *Analysis of Crosstalk, a work by Michael Vaughan* and other writings, it is included in the recommended bibliography on the ElectroAcoustic Resource Site (EARS).

## 3. Informing the design and delivery of curriculum and syllabi in other institutions worldwide:

Fischman's writings and musical works have become essential reading and listening, and have influenced the design of teaching at higher education institutions, as illustrated by the following selected examples: *A Tutorial Survey of "Classic" Synthesis Techniques*, which applies the results of investigations into audio processing using CSound to the development of skills using this programming language, is used as a textbook in institutions other than Keele, such as Yale University (Section 5, item 9, 23/9/2009) and the University School of Music, Montevideo. This book chapter condenses the contents of a previous manuscript which has been used in other institutions such as the Federal University of Rio de Janeiro (Section 5 item 10, 14-15/4/2010), and is presently available at the professional musician's site the Peruvian Circle of Composers *Circomper* (Section 5, item 11). The Italian translation of *The Phase Vocoder Theory and Practice* is used at present as text in the syllabus of the Electroacoustic Programme at the Music

## Impact case study (REF3b)

Conservatoire Domenico Cimarosa, Avelino. The article *Analysis of Crosstalk, a work by Michael Vaughan*, is currently part of the recommended bibliography at the University of Helsinki. Fischman's acousmatic work *Kol HaTorr* is taught and analysed as repertoire at the Jerusalem Academy of Music and Dance (Section 5 item 13, 10/11/2009). *Mekorot Hamuzica Havisualit: Perspektiva Muzicalit* (forthcoming) is already used as text for courses in visual music at the Bezalel Academy of Arts and Design and *¿Te Acuertas Hijo?* (2006) is used as recommended work here too (Section 5 item 13, 10/1/2012).

## 5. Sources to corroborate the impact

1. Animation World Network Television, Video Fischman, R. *Te Acuertas Hijo? (Do You Remember Son?)* released 2007, still available 2013, from: <http://www.awntv.com/videos/te-acuertas-hijo-do-you-remember-son>.
2. Canadian Electroacoustic Community, Blackburn, M. *Electroacoustic Music Incorporating Latin American Influences*. Available from: [http://cec.sonus.ca/econtact/12\\_4/blackburn\\_influences.html](http://cec.sonus.ca/econtact/12_4/blackburn_influences.html).
3. PDF copy of *Haaretz* interview (*Galeria arts supplement*, 20/02/2009: article No. 148498).
4. AL & ERWIN user.
5. Database of AL & ERWIN registered downloads
6. Examples of AI & Erwin downloads from other sites: **Don't Crack**, 1389 downloads by 8/10/2013, <http://www.dontcrack.com/freeware/downloads.php/id/3774/software/AI-%26-Erwin/>. **440Software**, 2350 downloads by 8/10/2013, <http://www.440audio.com/en/software/v3774-Rajmil-Fischman-AI-Erwin/>. **Updatestar**, unspecified downloads, <http://al-and-erwin.updatestar.com/>.
7. *Electronic Musician*, 'Game of Chance' by Miller, D. 1<sup>st</sup> November 2003: <http://www.emusician.com/gear/0769/game-of-chance/145530>.
8. E Giordani's Italian translation of *The Phase Vocoder Theory and Practice*, downloadable as a PDF from: <http://xoomer.virgilio.it/e.giordani/docs/vocoder.PDF>.
9. Corroboration from Department of Computer Science, Yale University.
10. Corroboration from Federal University of Rio de Janeiro.
11. Fischman, R. 'Musical Applications of Digital Synthesis and Processing Techniques', first placed on site December 2006, still available from: <http://www.geocities.ws/circomper2/Csound.pdf>.
12. Corroboration from Jerusalem Academy of Music and Dance.
13. Corroboration from Bezalel Academy of Arts and Design.