

## **Dr Philip Harrison: Summary Curriculum Vitae**

Dr Philip Harrison is a forensic consultant specialising in the analysis of speech, audio and recordings. He has over eighteen years' experience of forensic work at J P French Associates, having worked on over 1000 cases in the areas of authentication, enhancement, transcription and speaker comparison, as well as many miscellaneous cases.

### **Positions**

#### **J P French Associates, York**

Casework assistant, 1997 – 2001

Forensic consultant, 2001 – present

#### **Department of Language and Linguistic Science, University of York**

Teaching Fellow, 2007 – 2015

Associate Lecturer, 2015 – present

Research Fellow, 2015 – present

### **Other**

Tutor on forensic speech analysis, International Summer School in Forensic Linguistic Analysis, 2005 – 2007

### **Qualifications**

BEng (First class) Acoustical Engineering, Institute of Sound and Vibration Research, University of Southampton, 2001

MA (Distinction) Phonetics and Phonology, University of York, 2004

PhD in Linguistics, University of York, 2015

### **Memberships**

Member of the Institute of Acoustics

Member of International Association for Forensic Phonetics & Acoustics

Member of British Association of Academic Phoneticians

Member of International Speech Communication Association

### **Association and public offices**

Specialty assessor in the area of Audio Analysis for the Council for the Registration of Forensic Practitioners (CRFP) (now closed)

Committee member of the Speech and Hearing Specialist Group within the Institute of Acoustics

Committee member of the Professional Conduct Committee of the International Association for Forensic Phonetics & Acoustics

### **Research Grants**

International Association for Forensic Phonetics and Acoustics (IAFPA). Award: £1,210. 'Perception of speech produced by individuals wearing garments covering the face', with Dr Dominic Watt (principal investigator) and Dr Carmen Llamas (University of York).

Marie Curie FP7 Initial Training Network. Award £428,832.00 as part of Bayesian Biometrics For Forensics (Language & Speech Element) with Prof Paul Foulkes, Dr Dominic Watt (University of York) and Prof Peter French (JP French Associates).

British Academy/Leverhulme Trust. Award: £9,848. 'Modelling features for forensic speaker comparison', with Paul Foulkes (Principal Investigator), Peter French, Vincent Hughes, Louisa Stevens, Erica Gold, Colin Aitken, and Tereza Neocleous.

UK Arts and Humanities Research Council (AHRC). Award £892,000. 'Voice and Identity: Source, Filter, Biometric', with Prof Paul Foulkes (Principal Investigator), Prof Peter French, Dr Vincent Hughes and Dr Eugenia San Segundo Fernandez.

### **Forensic Regulation**

Dr Harrison is currently part of a group writing the appendix for Speech and Audio analysis for the UK Forensic Regulator's Codes of Practice and Conduct.

### **Publications**

- Harrison, P. (2001) 'GSM interference cancellation for forensic audio: a report on work in progress'. *Forensic Linguistics: The International Journal of Speech, Language and the Law* Vol. 8(2).
- French, J.P. & Harrison, P. (2004) 'Case Report. R -v- Ingram, C., Ingram, D. and Whittock, T. The Who Wants to be a Millionaire? Fraud Trial'. *International Journal of Speech, Language and the Law* Vol. 11(1).
- French, J.P. & Harrison, P. (2006) 'Investigative and evidential applications of forensic speech science'. In A. Heaton-Armstrong, E. Shepherd, G. Gudjonsson and D. Wolchover (eds.) *Witness Testimony: Psychological, Investigative and Evidential Perspectives*. Oxford: Oxford University Press.
- French, J.P., Harrison, P. & Windsor Lewis, J. (2006) 'Case Report. R -v- Humble, J.S. The Yorkshire Ripper Hoaxer Trial.' *International Journal of Speech, Language and the Law* Vol. 13(2).
- Harrison, P. (2007) 'Analysis of "The Pruszyński Tape"' (report on recording of gunshots). In Ayton, M. *The Forgotten Terrorist: Sirhan Sirhan and the Assassination of Robert F. Kennedy*. Washington: Potomac Books.
- Harrison, P. & French, J.P. (2007) 'Forensic speech analysis and the logically coherent expression of conclusions'. In Turell, M.T., Cicres, J., & Spassova, M. S. (eds.) *Proceedings of the 2nd European IAFL Conference on Forensic Linguistics / Language and the Law 2006*. Barcelona: IULA: DOCUMENTA UNIVERSITARIA
- French, J.P. & Harrison, P. (2007) 'Position Statement concerning use of impressionistic likelihood terms in forensic speaker comparison cases.' *International Journal of Speech, Language and the Law* Vol. 14 (1).
- T. Hudson, G. de Jong, K. McDougall, P. Harrison and F. Nolan (2007) 'F0 Statistics for 100 Young Male Speakers of Standard Southern British English', In J. Trouvain and W. Barry (eds.), *Proceedings of the 16th International Congress of Phonetic Sciences*, 6-10 August 2007, Saarbrücken, 1809-1812.
- Harrison, P (2008) 'Formant measurement errors from synthetic speech'. *Proceedings of the Institute of Acoustics* Vol. 30(2), 638-645.
- Llamas, C., Harrison, P., Donnelly, D. & Watt, D. (2009). Effects of different types of face coverings on speech acoustics and intelligibility. *York Papers in Linguistics* (Series 2) 9: 80-104.

- French, P., Nolan, F., Foulkes, P., Harrison, P. & McDougall, K. (2010) 'The UK position statement on forensic speaker comparison: a rejoinder to Rose and Morrison'. *International Journal of Speech Language and the Law*, Vol. 17 (1).
- Gold, E., French, P., and Harrison, P. (2013) Examining long-term formant distributions as a discriminant in forensic speaker comparisons under a likelihood ratio framework. In *Proceedings of Meetings on Acoustics (POMA - ICA 2013 Montreal)* 19.
- Gold, E., French, P. & Harrison, P. (2013) 'Clicking Behavior as a Possible Speaker Discriminant in English'. *Journal of the International Phonetics Association* Vol 43, 339-349. (Invited paper in Special Issue 'Non-pulmonic sounds in European languages').
- French, P, Foulkes, P, Harrison, P, Hughes, V, San Segundo Fernandez, E & Stevens, LC (2015) 'The vocal tract as a biometric: output measures, interrelationships, and efficacy'. In *proceedings of 18<sup>th</sup> ICPHS, Glasgow*.

### **Presentations**

- Harrison, P (2001) GSM interference cancellation for forensic audio. IAFPA conference, Paris, France.
- French, P & Harrison, P (2003) Finding One's Place: A Consideration of Methods Used for Determining Source Locations of Questioned Sounds in Evidential Recordings. IAFP conference, Vienna, Austria.
- French, P & Harrison, P (2004) Adapting the Praat speech analysis programme to the purposes of forensic phonetic casework and research. BAAP Colloquium, University of Cambridge.
- Harrison, P (2005) Variability of Formant Measurements. IAFPA conference, Marrakech, Morocco.
- French, P & Harrison, P (2005) Lay-Witness Voice Description & Identification: Considerations of Shouting, Pitch and Accent. IAFPA conference, Marrakech, Morocco.
- Harrison, P (2005) The Acoustics of a Fraud: Who Wants to be a Millionaire? IOA Eastern Branch AGM [Invited]
- Harrison, P (2006) Forensic Speech Analysis & the Logically-Coherent Expression of Conclusions. IAFL conference, Barcelona, Spain. [Keynote plenary]
- Harrison, P (2006) Variability of Formant Measurements – Part 2. IAFPA conference, Gothenburg, Sweden.
- Harrison, P (2007) Formant Measurement Errors: Preliminary Results from Synthetic Speech. IAFPA conference, Plymouth, UK.
- Clermont, F., Harrison, P. & French, P. (2007) Formant pattern estimation guided by cepstral compatibility. IAFPA conference, Plymouth, UK.
- Hudson, T., de Jong, G., McDougall, K., Harrison, P. & Nolan, F. (2007) F0 statistics for Spontaneous British English. IAFPA conference, Plymouth, UK.
- Harrison, P (2007) The Work of the Forensic Speech Scientist: An Illustrated Talk. English Language & Linguistics Society, University of Edinburgh. [Invited]
- Watt, D, Llamas, C & Harrison, P (2008) Transmission loss properties of fabrics used in commonly-worn mouth and face coverings. BAAP colloquium, University of Sheffield.
- Harrison, P. & French P. (2008) UK Developments in Forensic Speech and Audio Science. ENFSI WGFSAA Meeting, Bratislava, Slovakia.

- Harrison, P. (2008) A Method for Reducing Formant Measurement Errors in Synthetic Speech. IAFPA conference, Lausanne, Switzerland.
- Clermont, F., French, P., Harrison, P. & Simpson, S. (2008) Population data for English spoken in England: a modest first step. IAFPA conference, Lausanne, Switzerland.
- Watt, D., Harrison, P. & Llamas, C. (2008) Transmission loss properties of fabrics in garments used to cover the mouth and nose. IAFPA conference, Lausanne, Switzerland.
- French, P., Harrison, P., Cawley, L., Bhagdin, A. & Clermont, F. (2009) Evaluation of the Batvox automatic speaker recognition system for use in UK based forensic speaker comparison casework. IAFPA conference, University of Cambridge, UK.
- Hudson, T., McDougall, K., de Jong, G. & Harrison, P. (2009) F0 trends within and between young, male speakers of SSBE. IAFPA conference, University of Cambridge, UK.
- French, P & Harrison, P (2009) Evaluation of Batvox with British English Data: Initial Results. Agnitio User Club Meeting, Madrid, Spain.
- Roberts, L., French, P. & Harrison, P. (2010) The influence of context on listeners' perceptions of distress and linguistic content in forensic audio recordings. BAAP colloquium, London, UK.
- French, P & Harrison, P (2010) The Work of Forensic Speech and Audio Analysts. AES Convention, London, UK. [Invited workshop]
- Harrison, P (2010) Formant measurement errors for multiple synthetic speakers. IAFPA conference, Trier, Germany.
- Watt, D., Llamas, C & Harrison, P (2010) Differences in perceived sound quality between speech recordings filtered using transmission loss spectra of selected fabrics. IAFPA conference, Trier, Germany.
- Harrison, P & French P (2010) Assessing the Suitability of Batvox for UK Casework Part II. IAFPA conference, Trier, Germany.
- French, P., Harrison, P. & Moreno, A (2010) Batvox Performance with UK Forensic Case Data. Agnitio User Club Meeting, Paris, France.
- Harrison, P. (2011) Formant Measurement Errors from Real Speech. IAFPA conference, Vienna, Austria.
- French, P., Harrison, P., McDougall, K., Stevens, L., Bhagdin, A. & Nolan, F (2011) Batvox: Performance with UK case data and relationship of distance scores to voice quality features. IAFPA conference, Vienna, Austria.
- French, P & Harrison, P. (2011) Using Batvox for forensic speech analysis casework. BBfor2 summer school in forensic speech analysis, University of York, UK [invited]
- Harrison, P. & French, P. (2011) Phonetic-acoustic approach to forensic speaker comparison. Forensic Speaker Recognition Symposium, University of Colorado, Denver, USA [invited]
- Harrison, P. & French, P. (2011) Batvox evaluation for UK casework & admissibility of speaker comparison evidence, Forensic Speaker Recognition Symposium, University of Colorado, Denver, USA [invited]
- McDougall, K., Nolan, F., Harrison, P & Kirchhubel, C (2012) Characterising speakers using formant frequency information: a comparison of vowel formant measurements and long-term formant analysis. IAFPA conference, Santander, Spain.
- French, P., Foulkes, P., Harrison, P. & Stevens, L. (2012) Vocal Tract Output Measures: Relative Efficacy, Interrelationships and Limitations. IAFPA conference, Santander, Spain.

- Harrison, P & Clermont, F (2012) The influence of LPC order on the accuracy of formant measurements across speakers. IAFPA conference, Santander, Spain.
- French, P & Harrison, P (2013) Regulation of Forensic Speech and Audio Analysis, Home Office Regulator's Forensic Speech and Group, London [invited]
- French, P., Harrison, P., Foulkes, P., Stevens, L. & Gold, E (2013) A comparison of Batvox and other vocal tract output measures for speaker comparison. Agnitio User Club Meeting, The Hague, Netherlands.
- Harrison, P (2013) Forensic analysis of speech and audio recordings. ISVR, University of Southampton, UK. [invited]
- Neocleous, T., Aitken C., Foulkes, P., French, P., Gold, E., Harrison, P., Hughes, V Stevens, L. Evidence evaluation for forensic voice comparison. International Conference on Forensic Inference and Statistics. Leiden University, the Netherlands, August 19th - 22nd, 2014.
- Hughes, V., Gold, E., Foulkes, P., French, P., Harrison, P., Stevens, L., Aitken C. and Neocleous, T. Modelling features for forensic speaker comparison. IAFPA conference, Zurich, Switzerland.
- French, P., Foulkes, P., Hughes, V., Gold, E. and Harrison, P. (2014) Comparison of likelihood ratios based on MVKD and GMM-UBM. Second International Expert Workshop of the 2011 Monopoly project Methodological guidelines for semi-automatic and automatic speaker recognition for case assessment and interpretation, Wiesbaden, Germany, 18th -19th November, 2014 [invited]
- French, P, Foulkes, P, Harrison, P, Hughes, V & San Segundo Fernandez, E (2015) 'HASR to AHSR'. IAFPA conference, Leiden, Netherlands.
- French, P, Foulkes, P, Harrison, P, Hughes, V, San Segundo Fernandez, E & Stevens, LC (2015) 'Long term measures of the resonating vocal tract: establishing correlation and complementarity'. IAFPA conference, Leiden, Netherlands.

### **Casework**

He has been involved in cases from a range of countries including Eire, Ukraine, Uganda, Hong Kong, Pakistan, Ghana and Gibraltar as well as the UK. He has also worked on cases heard by the International War Crimes Tribunal in The Hague and the Bloody Sunday Inquiry. He has appeared as an expert witness in Crown Courts in England, including the Court of Appeal (Criminal Division), the Central Criminal Court (the Old Bailey), the Sindh High Court, Karachi (court removed to England to hear expert evidence) and the High Court in Accra, Ghana. In criminal cases he undertakes work for both prosecution and defence. Some high profile and international cases in which he has acted are:

United Nations -v- Slobodan Milošević. Trial for Genocide, Crimes Against Humanity and Violations of the Laws or Customs of War. Authentication of tape recordings. The International Criminal Tribunal for the Former Yugoslavia, The Hague. 2003 - 2006. Instructed on behalf of Tribunal Judges (i.e., independent of prosecution and defence). R  
See: <http://www.un.org/icty/milosevic/trialc/decision-e/040614.htm>

R -v- Nathan Martin, Marcus Ellis, Michael Gregory, Rodrigo Simms & Tarfarwa Beckford. Trial for the shooting and murder of Charlene Ellis and Letisha Shakespeare in Birmingham, January 2003. Assessment of lay witness identification. Leicester Crown Court, November 2004 – March 2005. Instructed by the defence for Beckford. R  
See: [http://news.bbc.co.uk/2/hi/uk\\_news/england/west\\_midlands/4276207.stm](http://news.bbc.co.uk/2/hi/uk_news/england/west_midlands/4276207.stm)

Sarah Forsyth -v- Eton College. The Prince Harry A-level Art tape. Authentication of cassette recording. Employment Tribunal Hearing, Reading, Berks. Judgment July 2005. Instructed for the claimant. R

See: <http://education.guardian.co.uk/publicschools/story/0,12505,1327985,00.html>

R -v- John Humble. The Yorkshire Ripper Hoaxer case. Trial for attempting to pervert the course of justice. Authentication of cassette recording. Leeds Crown Court, March 2006. Instructed by the Crown. R

See: <http://www.timesonline.co.uk/article/0,,2-2095988,00.html>

R -v- Omar Khyam & Ors. Fertilizer bomb plot trial. Trial for Conspiracy to cause explosions, possessing an article for the purpose of terrorism. Transcription of covert recordings. Central Criminal Court, Old Bailey, London, November 2006. Instructed by the defence for various defendants. R & WB

See: [http://news.bbc.co.uk/1/hi/in\\_depth/uk/2007/fertiliser\\_bomb\\_plot/](http://news.bbc.co.uk/1/hi/in_depth/uk/2007/fertiliser_bomb_plot/)

The State of Ghana -v- Kwabena Amaning & Alhaji Issah Abass. Trial for conspiracy to import and supply narcotic drugs and carrying out prohibited business. Authentication of covert recording. High Court Accra, Ghana, May 2007. Instructed by Attorney General. R & WB

See: <http://www.ghanaweb.com/GhanaHomePage/crime/artikel.php?ID=124231>

R -v- Michael Hubble. The disappearance of the yacht Ouzo after alleged collision with P&O ferry the Pride of Bilbao. Trial for three counts of manslaughter and charges of endangering lives under the Merchant Shipping Act. Analysis of ship's bridge recordings. Winchester Crown Court, December 2007. Instructed by the Defence. R

See: <http://news.bbc.co.uk/1/hi/england/hampshire/7142272.stm>

R -v- John Fowler, Stuart Royle, Jetmir Bucpapa, Lea Rusha, Ermir Hysenaj, Roger Coutts, Louise Hogg & Keith Borer. The £53m Securitas robbery trial. Trial for conspiracy to kidnap, conspiracy to commit robbery, conspiracy to possess a firearm and handling stolen goods. Recording analysis – determining interaction in recording. Central Criminal Court, Old Bailey, London, August 2007. Instructed by Crown. R & WB

See: <http://news.bbc.co.uk/1/hi/uk/6239994.stm>

R -v- David Cullen Bain. Retrial subsequent to quashing of conviction for murder of five family members. Authentication and transcription of emergency call. Preliminary *voir dire* hearing, High Court, Christchurch, New Zealand, November 2008. R & WB (video link). Report used by Court of Criminal Appeal and Supreme Court of New Zealand in deciding admissibility of audio evidence March 2009.

See: [http://www.courtsofnz.govt.nz/cases/david-cullen-bain-v-the-queen-1/at\\_download/fileDecision](http://www.courtsofnz.govt.nz/cases/david-cullen-bain-v-the-queen-1/at_download/fileDecision)

R -v- Kingsley Ogundele. Trial for attempted murder. Transcription of telephone call from prison. Central Criminal Court, Old Bailey, October 2009. R & WB.

See: <http://news.bbc.co.uk/1/hi/8395601.stm>

R -v- Devalda & Crossley. Trial for kidnap and murder. Transcription and authentication of covert hotel room recordings. Liverpool Crown Court, February 2011. R & WB.

See: <http://www.bbc.co.uk/news/uk-england-lancashire-12764884>

R -v- Dennis Kelly (aka O'Brien). Trial for murder and drug-trafficking. Speaker comparison analysis. Liverpool Crown Court, January 2012. R & WB.

R -v- Gary Moore & Others. Trial for drug-trafficking. Authentication of surveillance recordings. Southwark Crown Court, January 2013. R & WB.

R -v- Michael Samuels & Others. Trial for murder. Transcription of taxi CCTV footage. Liverpool Crown Court, 6<sup>th</sup> March 2013. R & WB.

See: <http://www.liverpoolecho.co.uk/news/liverpool-news/semi-pro-footballer-jailed-after-kicking-3010882>

Bill Gary Edwards (appellant) – and – The Chief Constable of North Yorkshire Police (respondent). Appeal against revocation of firearm and shotgun certificates. Identification of shotgun sounds in 999 call recording. York Crown Court, before HH Judge Davey and two lay magistrates, February 2015. Instructed on behalf of Chief Constable of N Yorks Police. R & WB.

(R = Report, WB = Witness Box)

### **Media**

New Scientist article *Sounds like he's innocent*, November 2002

Sound on Sound article *Alternative Careers for Sound Engineers*, July 2004

BBC News website article, *The hum that helps to fight crime*, December 2012

Radio New Zealand, *This way up – Audio hum*, February 2013

BBC2's Dara O'Briain's Science Club *Invisible Worlds*, August 2013

BBC1's The One Show – demonstrating ENF analysis, August 2015