Jodie Davies-Thompson

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RESEARCH INTERESTS

I have a general interest in all aspects of vision and neural plasticity. However, I am particularly interested in the effects that brain injury or congenital dysfunctions have on visual processing and brain organisation. I use a range of techniques, including behavioural and psychophysical studies, fMRI, fMR-adaptation, multi-voxel pattern analysis (MVPA), dynamic causal modeling (DCM), psycho-physiological interactions (PPI), diffusion tensor imaging (DTI), volumetric brain morphometry (VBM), and myelin water imaging (MWI). My main research interests are: **1) Face recognition** in normal and abnormal populations; **2) Rehabilitation of prosopagnosia**, and ways in which perceptual learning can be applied to improve face recognition abilities, as well as the structural and functional changes that occur as a result of these behavioural improvements; **3) Cross-modal plasticity** of the visual and auditory cortex – in particular in blind and D/deaf individuals.

EDUCATION AND EMPLOYMENT

- January 2018- **Lecturer,** Department of Psychology, Swansea University, UK.
- 2015- 2018. **Marie Sklodowska-Curie research fellow,** i) CIMeC, University of Trento, Italy, and ii) NIHR Biomedical Research Centre, and Department of Medicine, University of Nottingham. Principle investigators: Dr Olivier Collignon and Prof Doug Hartley.
- 2014-2015. **Postdoctoral research fellow,** CIMeC, University of Trento, Italy. Principle investigator: Dr Olivier Collignon.
- 2010-2014. **Postdoctoral research fellow,** University of British Columbia, Canada. Principle investigator: Prof Jason Barton. Interlab secondment, Principle investigator: Dr Alex Rauscher.
- 2007-2010**. PhD (ESRC 1+3 funded),** University of York, UK. *Neural basis of familiar face recognition.* Supervisor: Prof Tim Andrews. Research committee: Prof Andy Young; Prof Tony Morland.
- 2006-2007**. MSc. Cognitive Neuroscience,** University of York, UK. Core subjects: Introduction to Neuroimaging (fMRI/MEG), Research Design in Neuroimaging, Advanced Neuroimaging, Advanced Statistics
- 2003-2006**. BSc Psychology,** University of Wales, Bangor, UK. Core subjects: Attention, Emotion and Motivation, Biological Psychiatry, Cognitive Neuroscience, Research Methods and Statistics. Research project: *'Perceived expressed emotion and adjustment in students'*. Supervisor: Dr Sharon Nelis. **Additional:** 1st year: audited 3rd year modules in Evolutionary Psychology and Forensic Psychology. 2nd year: partook in the Academic Advancement Programme. 3rd year: joined a research lab as a voluntary research assistant with Prof Paul Downing.

FUNDING AND AWARDS

- 2017. **NIHR Nottingham BRC Innovation funding initiative:** £26,035. "Cross-modal plasticity: predicting outcomes of cochlear implants in the deaf". Included funding for a 6-month Research Assistant position.
- 2017. **Females of Vision et al (FoVea) Travel and Networking Award:** $1,600.
- 2017. **University of Nottingham, Research Staff Travel Prize:** £491.
- 2015. **Marie-Sklodowska Curie Research Fellowship**: €180,277. "Cross-modal plasticity and functional modularity in the deaf".
- 2011 - 2013. **Summer student project funding:** (helped secure)
  - 2 x NSERC Undergraduate Student Research Awards (2 x $4,500)
  - American Academy of Neurology, Medical Student Research Scholarship ($3,000)
  - Fight for Sight, Summer Student Fellowship ($2,500)
  - Canadian Institutes of Health Research, Health Professional Student Research Award ($5,900)
  - Albert and Mary Steiner Summer Research Award ($3,200)
- 2007. **Economical and Social Research Council (ESRC) 1+3 studentship**: £48,000.

PEER-REVIEWED PUBLICATIONS

- Wang LX* and **Davies-Thompson J*,** & Barton, JJS. (Submitted). The effects and interactions of visual expertise on aftereffects and perceptual discrimination.
- Lawrence RJ, Wiggins IM, Anderson CA, **Davies-Thompson J**, & Hartley DEH. (2018). Cortical correlates of speech intelligibility measured using functional near-infrared spectroscopy (fNIRS). Hearing Research, 370, 53-64
- **Davies-Thompson J,** Elli G, Rezk M, Benetti S, van Ackeren M, & Collignon O. (2018). Hierarchical brain network for face and voice integration of emotion expression. Cerebral Cortex, bhy240
- **Davies-Thompson J,** Fletcher K, Hills C, Pancaroglu R, Corrow S, & Barton, JJS. (2017). Perceptual learning of face: a rehabilitative study of acquired prosopagnosia. Journal of Cognitive Neuroscience, 29(3), 573-591.
- **Davies-Thompson J**, Johnston S, Tashakkor Y, Pancaroglu R, & Barton, JJS. (2016). The relationship between visual word and face processing lateralization in the fusiform gyri: a cross-sectional study. Brain Research, 1644, 88-97.
- **Davies-Thompson J*** and Vavasour I*, Scheel M, Rauscher A, & Barton, JJS. (2016). Reduced myelin water in the white matter tracts of patients with Niemann-Pick disease Type C. American Journal of Neuroradiology, 37(8), 1487-1489.
- Foster GE, **Davies-Thompson J**, Dominelli PB, Heran MKS, Donnelly J, duManoir GR, Ainslie PN, Rauscher A, & Sheel AW. (2015). Changes in cerebral vascular reactivity and structure following prolonged exposure to high altitude in humans. Physiological Reports, 3, e12647.
- Muayqil T*, and **Davies-Thompson J***, & Barton, JJS. (2015). Representation of visual symbols in the visual word processing network. Neuropsychologia, 69, 232-241.
- Kiani G, **Davies-Thompson J**, & Barton, JJS. (2014). Erasing the face aftereffect. Brain Research, 1586, 152-161.
- Dalrymple K* and **Davies-Thompson J***, Oruc I, Handy T, Barton JSS, & Duchaine B. (2014). Spontaneous perceptual facial distortions correlate with ventral occipitotemporal activity. Neuropsychologia, 59, 179-191.
- Hills C, Romano K, **Davies-Thompson J,** & Barton JJS. (2014). An adaptation study of internal and external features in facial representations. Vision Research, 100, 18-28.
- **Davies-Thompson J**, Pancaroglu R, & Barton JJS. (2014). Acquired prosopagnosia: A review of its structural basis and processing impairments. Frontiers in Bioscience (Elite Edition), 6, 159-174.
- Lai J, Pancaroglu R, Oruc I, Barton JJS, **& Davies-Thompson J**. (2014). Neuroanatomical correlates of the feature-salience hierarchy in face processing: An fMRI-adaptation study. Neuropsychologia, 53, 274-283.
- **Davies-Thompson J**, Scheel M, Lanyon LJ, & Barton JJS. (2013). Functional organisation of visual pathways in a patient with no optic chiasm. Neuropsychologia, 51(7), 1260-1270.
- **Davies-Thompson J**, Newling K, & Andrews TJ. (2013). Image-invariant responses in face-selective regions do not explain the perceptual advantage for familiar face recognition. Cerebral Cortex, 23(2), 370-377.
- **Davies-Thompson J**, & Andrews TJ. (2012). Intra- and interhemispheric connectivity between face-selective regions in the human brain. Journal of Neurophysiology, 108 (11), 3087-3095.
- Andrews TJ, **Davies-Thompson J,** Kingstone A, & Young AW. (2010). Internal and external features of the face are represented holistically in face-selective regions of visual cortex. Journal of Neuroscience, 30, 3544-3552.
- **Davies-Thompson J**, Gouws A, & Andrews TJ. (2009). An image-dependent representation of familiar and unfamiliar faces in the human ventral stream. Neuropsychologia, 47, 1627-1635.

PEER-REVIEWED PRESENTATIONS

- **Davies-Thompson J,** Fletcher K, Hills C, Pancaroglu R, Corrow S, & Barton, JJS. (2017). Perceptual learning of faces: A rehabilitative study of acquired prosopagnosia. [Abstract]. Journal of Vision, 17(10), 626.
- Corrow S, **Davies-Thompson J,** Fletcher K, Corrow J, Hills C, Duchaine B, & Barton, JJS. (2017). Perceptual learning of faces: A rehabilitative study of developmental prosopagnosia. [Abstract]. Journal of Vision, 17(10), 625.
- **Davies-Thompson J**, Elli GV, Rezk M, Benetti S, van Ackeren M, & Collignon O. (2016). The neural basis and dynamics of face and voice integration of emotion expression. [Abstract]. Journal of Vision, 16(12), 1230.

- **Davies-Thompson J** and Fletcher K, Hills C, Corrow S, Pancaroglu R, & Barton, JJS. (2015). Perceptual training of faces in rehabilitation of acquired prosopagnosia. [Abstract]. European Conferences on Visual Perception.
- **Davies-Thompson J**, Muayquil T, & Barton JJS. (2014). Symbolic object representation in visual cortex. [Abstract]. Journal of Vision, 14(10), 178.
- Wang, LX, Barton JJS, & **Davies-Thompson J.** (2014). The influence of perceptual expertise on object aftereffects: the case of faces, birds, and cars. Journal of Vision, 14(10), 818.
- Hills C, Rubino C, Sheldon C, Pancaroglu R, **Davies-Thompson J**, & Barton JJS. (2014). Processing of words and text in prosopagnosia. [Abstract]. Journal of Vision, 14(10), 177.
- Foster GE, **Davies-Thompson J**, Dominelli PB, Heran MK, Donnelly J, duManoi GR, Ainslie PN, Rauscher A, Scheel W. (2014). Changes in cerebral structure and vascular reactivity associated with prolonged exposure to 5,050m [Abstract]. Physiological Society.
- **Davies-Thompson J**, Johnston S, Tashakkor Y, Pancaroglu R, & Barton JJS. (2013). Hemispheric lateralization of visual word and face activation in the fusiform gyri [Abstract]. Organization of Human Brain Mapping.
- Kiani G, **Davies-Thompson J**, & Barton JJS. (2013). The short-term temporal dynamics of the face identity after-effect: An adaptation-interference study. [Abstract]. Journal of Vision, 13(9), 416.
- Hills C, Pancaroglu R, Alonso-Prieto E, **Davies-Thompson J**, Oruc I, Duchaine B, & Barton JJS. (2013). Functional neuroimaging and behavioral classification of a case of prosopagnosia with classic bilateral occipitotemporal lesions. [Abstract]. Journal of Vision, 13(9), 995.
- **Davies-Thompson J,** Lanyon JL, Barton JJS. (2012). Functional organisation of visual pathways in a patient with no optic chiasm [Talk]. Journal of Vision, 12(9), 787.
- Hills C, Romano K, & **Davies-Thompson J.** (2012). An adaptation study of internal and external features in face representations**.** [Abstract]. Journal of Vision, 12(9), 622.
- Lai J, Pancaroglu R, Barton JJS, **Davies-Thompson J**. (2012). Neuro-anatomic correlates of the feature-saliency hierarchy in face processing: an fMRI-adaptation study [Abstract]. Journal of Vision, 12(9), 500.
- **Davies-Thompson J**, & Andrews TJ. (2011). The localization and functional connectivity of face-selective regions in the human brain [Abstract]. Journal of Vision, 11(11), 647.
- **Davies-Thompson J,** Kingstone A, Young AW, & Andrews TJ. (2010). Internal and external features of the face are represented holistically in face-selective regions of visual cortex [Abstract]. Journal of Vision, 10(7), 674.
- **Davies-Thompson J**, Spyrou S, & Andrews TJ. (2008). View-dependent adaptation to familiar and unfamiliar faces in the human brain [Abstract]. Journal of Vision, 8(6), 162.

TALKS / INVITED PRESENTATIONS

- June, 2018. Neuroplasticity in the Deaf. *Sharing Good Practice, Rampton Hospital, Retford.*
- April, 2018. What are the hearing parts of the brain doing in Deaf people? *Café Scientifique, Nottingham.*
- February, 2018. Neuroplasticity in the Deaf. *St Andrews Healthcare, Northampton.*
- January, 2018. Neuroplasticity: the good, the bad, and the good again. *Lumesse Learning Lounge. London.*
- January, 2018. What are the hearing parts of the brain doing in Deaf people? *PubhD, Nottingham.*
- 2015. Visual plasticity and cross-modal plasticity: lessons from patient populations. *University of Nottingham.*
- 2013. A journey through fMRI and neural plasticity in face blindness. *MSc Medical Physics program, UBC.*
- 2013. Functional and structural correlates of face training. *UBC MRI research groups: 7th Annual Retreat.*
- 2012. Functional organisation of visual pathways in a patient with no optic chiasm. *Vision Sciences Society, Florida (US).*
- 2012. Face training and perceptual learning. *Annual Face Research Day, Vancouver.*
- 2011. Using fMR-adaptation to investigate how complex objects are represented in the human brain. *UBC MRI research groups: 5th Annual Retreat.*
- 2011. Fast acquisition fMRI. *UBC MRI research groups: 5th Annual Retreat.*

IN THE MEDIA

- *Young brains compensate for deafness more than older ones.* Horizon: the EU Research and Innovation Magazine, March 2016.

- *The man with uncrossed eyes***.** Discover Magazine, April 2013.
- *Scientists use brain scans to reveal how a man with 'uncrossed eyes' is still able to see***.** Daily Mail, April 2013.
- *The Man Who Shouldn't Have Normal Vision.* United Academics, April 2013.

SUPERVISORY EXPERIENCE

- 2019. **Supervisor:** William Warren (Research Assistant): *'Crossmodal plasticity in the Deaf'.* **Funding secured.**
- 2018. **Supervisor:** Grace Bailey (MSc Clinical Psychology): *'Multisensory integration of faces and voices in developmental prosopagnosia'.*
- 2016. **Co-supervisor:** Rachael Lawrence (ENT registrar): *'Towards the development of a prognostic tool for cochlear implant (CI) outcome'*.
- 2015-2016. **Supervisor:** Jyothi Vadlamudi (MSc Cognitive Neuroscience): *'Cross-modal adaptation to faces and voices in the anterior temporal lobe'.*
- 2014-2015. **Supervisor:** Erica Giorgione (MSc Cognitive Neuroscience): *'The role of the auditory cortex in temporal processing: the case of audition, vision, and touch'.*
- 2013-2014. **Supervisor:** Ghazal Kiani (BSc Pharmacology): *'Is there a homunculus in human visual cortex?'* Talk at Vision Sciences Society conference (Florida).
- 2013. **Supervisor:** Linda Wang (BSc Biology): *'The role of perceptual expertise for objects in the generation of face and non-face aftereffects'* (submitted). **Funding secured.** Work presented at Vision Sciences Society conference (Florida).
- 2012-2013. **Supervisor:** Taim Muayqil (Neurology Fellow): *'Symbolic and non-symbolic representations in the inferior temporal cortex: an fMRI study'* (published).
- 2012. **Supervisor:** Ghazal Kiani (BSc Pharmacology): *'The short-term temporal dynamics of the facial identity aftereffect: an adaptation-interference study'* (published). **Funding secured.**
- 2011. **Supervisor:** Joshua Lai (BSc Medicine): *'Neuro-anatomic correlates of the feature-saliency hierarchy in face processing: an fMRI-adaptation study'* (published). **Funding secured.**
- 2011. **Supervisor:** Kali Romano (BSc Medicine): *'An adaptation study of internal and external features in face representations'* (published). **Funding secured.**
- 2009. **Co-supervisor:** Alicia Wooding, Laura Binns, Fiona Spiers, Helen Warwick (BSc Psychology).
- 2008. **Co-supervisor:** Johan Carlin, Anna Gebhardt, Rachel Harlow, Anneka Holden (BSc Psychology).

TEACHING

- 2018 – ongoing. **Lecturer**. Cognition II, Department of Psychology, Swansea University.
- 2009, 2010. **Guest lecturer:** The role of physics in neuroscience. 'Stimulating Physics' – an initiative to increase the number of A level students undertaking physics.
- 2007-2010. **Teaching Assistant:** Introduction to Neuroimaging (MSc. Cognitive Neuroscience), Language and Evolution (BSc Psychology), York
- 2004-2006. **Teaching Assistant:** Oral presentation practice sessions, BSc. Psychology, Bangor

OUTREACH

- *2018. Neuroplasticity:* What are hearing parts of the brain doing in Deaf people? *SciBar*, Nottingham. *Talk, general public.*
- *2018.* What the hearing parts of the brain are doing in Deaf people: the results. PubhD, Nottingham. *Talk, general public.*
- 2017. What the hearing parts of the brain are doing in Deaf people: about the project. PubhD, Nottingham. *Talk, general public. https://www.leftlion.co.uk/read/2017/march/pubhd-march*
- 2016. What illusions and brain damage can tell us about how the brain processes vision. Ada Lovelace Day, Women in Engineering and Science, Nottingham. *Poster, local high school students and University of Nottingham undergraduate students.*
- 2013. Brain anatomy and dysfunctions. *Talk, high school students, Vancouver.*
- 2013. Using fMRI to answer questions about face recognition. *Talk, high school students, Vancouver*
- 2010. Research as a career: cognitive neuroscience. *Talk, high school students, York Neuroimaging Centre*

ADMINISTRATIVE EXPERIENCE

- 2012 onwards. **Ad-hoc reviewer:** Cerebral Cortex, NeuroImage, Journal of Neuroscience, Cortex, Cerebral Cortex, Human Brain Mapping, Visual Cognition, Cognitive Neuropsychology, Frontiers in Psychology, Vision Research, QJEP, Perception, Frontiers in Psychology, PloS ONE, Experimental Brain Research, Royal Society Open Science.
- 2012-2013. **Meeting organizer:** Visual Cognition (VisCog), University of British Columbia
- 2009-2010. **Journal club organizer:** Neuroscience of Vision and Action (NOVA).
- 2009-2010. **Committee member:** Early Career Researchers (ECR) forum. Organised training and career development events, including Brain Dissection Workshops, and 'Families and Science' days.
- 2007-2008. **Part-time sabbatical officer:** Graduate Students Association. Representing postgraduate students in university committees (including equal opportunity and disabilities committee), and coordinating all University of York postgraduate activities and facilities.

ADDITIONAL COURSE AND TRAINING

- 2018 - ongoing. IBSL Level 3 British Sign Language, Swansea (UK)
- 2017. Coursera module: Computational Neuroscience (Washington University)
- 2016. CACDP Level 2 British Sign Language, Nottingham (UK)
- 2015-2016. CACDP Level 1 British Sign Language, Nottingham (UK) (repeated for refresher)
- 2014. Repetition Suppression Summer School (ReSuS), Jena, (Germany)
- 2014. NeuroImaging Training Programme, Los Angeles, UCLA, (USA)
- 2013. FSL & FreeSurfer course, Redmond (USA)
- 2013. Coursera modules: Introduction to Physiology, Medical Neuroscience (Duke University)
- 2010. Human Brain Dissection workshop, York (UK)
- 2008. Using Matlab and CRS Tools for Vision Science, Durham (UK)
- 2006. Principles and Physics of fMRI course, Bangor (UK)
- 2005. Human Brain Dissection workshop, Cardiff (UK)
- 2004-2005. CACDP Level 1 British Sign Language, Bangor (UK)

COMPUTER SKILLS

Programming:	Matlab (intermediate); NBS Presentations (advanced); Python (basic); Eprime (basic).
Software:	FSL (advanced); FreeSurfer (basic); SPM (intermediate); BrainVoyager (basic); DTI studio (basic); Eyelink experiment builder (basic); Adobe Photoshop (advanced); SigmaPlot (advanced); FantaMorph (advanced); Sqirlz Morph (advanced); Curious Labs Poser (intermediate); SPSS (advanced); Dreamweaver (advanced); Microsoft Office (advanced).
Platforms:	Windows, Mac, Unix, Linux.

REFEREES

1. **Prof Doug Hartley.** NIHR Biomedical Research Centre, and Department of Medicine, University of Nottingham, douglas.hartley@nottingham.ac.uk
2. **Dr Olivier Collignon.** Department of Mind/Brain Sciences, University of Trento, Italy, olivier.collignon@unitn.it
3. **Prof Jason Barton.** Department of Ophthalmology & Visual Sciences, Faculty of Medicine, University of British Columbia, BC, Canada, jasonbarton@shaw.ca
4. **Prof Tim Andrews.** Department of Psychology, University of York, t.andrews@psych.york.ac.uk