



RYSSA MOFFAT

POSTDOCTORAL RESEARCHER

RESEARCH SKILLS

Experimental techniques

- fNIRS • EEG • TMS
- Motion Capture
- Ultrasound tongue imaging
- Behavioural • Qualitative/Interviews

Programming

- R • Python • HTML • MATLAB

Natural languages

Fluent English, German, French
Intermediate Croatian, Finnish, Spanish

INDUSTRY PARTNERSHIPS

2023 | Caran D'Ache
2023 | Cortivision (Pathfinder Program)

AWARDS & FELLOWSHIPS

2022 | ECR Travel Award to AS4SAN
2019 | Student Travel Award to CIAP
2019 | Graduate Research Funding,
Macquarie University
2018-2022 | IDEALAB PhD Fellowship
2016-2018 | Erasmus+ Mobility Grant

SUPERVISORY ROLES

PhD

Sep 23 - present | ETH Zurich, Fenella Symes

Masters

May - Dec 24 | Univ Zurich, Luca Naudszus
Feb - Aug 24 | ETH Zurich, Medea Häuselmann
Oct 23 - Apr 24 | Univ Utrecht, Tessa Portier
Jul 22 - May 23 | Macquarie Univ, Courtney Casale
and Abigail Peterson

Internships

2024 | Greta Bramow (DAAD)
2023 | Leonie Roos (DAAD), Jonathon Clare (MURI)
2022 | Annika Richter (DAAD), Sabrina Diep (RA)

TEACHING ACTIVITIES

ETH Zurich

- Sep - Dec 24 | The Cutting Edge of Social Brain Imaging (co-teaching with Emily Cross)
- Sep 23 - Jun 24 | Learning With & From Robots (co-teaching with Emily Cross)

Macquarie University:

School of Psychological Sciences & Department of Linguistics

Jul 2019 - Dec 2020
• Delusions and Disorders of the Mind and Brain
• Introductory Phonetics and Phonology
• Introduction to Psycholinguistics
• Phonological Analysis
• Language as Evidence

EDUCATION

2018 - 2022

PhD in Cognitive Science (2018 - 2022)

Joint degree from Macquarie University, Newcastle University, Universities of Groningen & Potsdam
Thesis title: *Recognition and cortical haemodynamics of vocal emotions – an fNIRS perspective*
Advisors: Prof. David McAlpine, Prof. Deniz Baskent, Dr. Lindsey van Yper, Dr. Robert Luke

2016 - 2018

M.Sc. in Clinical Linguistics

Joint degree from Universities of Eastern Finland, Groningen & Potsdam
Thesis title: *Coarticulation as a synchronic predictor of reading dysfluency*
Advisors: Prof. Martijn Wieling, Dr. Aude Noiray

2012 - 2016

HBA, Major in German Language and Culture, Minor in Linguistics

University of Ottawa
Exchange year at University of Bonn (Oct 2014 - Oct 2015)

ACADEMIC EMPLOYMENT

Jun 2023 - present

Postdoctoral Researcher | Professorship for Social Brain Sciences, ETH Zürich

Social Brain in Action (SoBA) Lab
• Interpersonal synchrony • Intergenerational & human-robot interaction • fNIRS • Motion tracking
• Aesthetic appreciation

Sep 2021 - May 2023

Postdoctoral Research Fellow | School of Psychological Sciences, Macquarie University

Social Brain in Action (SoBA) Lab
• Interpersonal motor synchrony • Human-Robot interaction • Inhibition • fNIRS • Aesthetic appreciation

Jan - Sep 2021

Research Assistant | School of Psychological Sciences, Macquarie University

Social Brain in Action (SoBA) Lab
• Child-Robot interaction • Artificial agent perception • Qualitative analysis

Mar - Dec 2018

Research Assistant | Department of Linguistics, University of Potsdam

Laboratory for Oral Language Acquisition (LOLA) & BabyLAB
• Lingual coarticulation • Developmental language disorders • Ultrasound imaging • fNIRS

May - Aug 2016

Research Assistant | Department of Neurology, RWTH Aachen University Hospital

Section for Clinical Cognition Sciences & Stroke/Aphasia Units
• Language production • TMS • EEG • Electrical pharyngeal stimulation

COMMUNITY INVOLVEMENT

2022 | Crestwood Secondary School, Canada & Camp Aspire, Macquarie University

Workshops on measuring motor synchrony, and maximising its social benefits for each Canadian and indigenous Australian highschool students

2022 | LEAP UP University Experience Day, Macquarie University

2021 | Widening Participation, Macquarie University

Reading robot-buddy activities introducing robots and scientific practice with each refugee and indigenous Australian highschool students

RECENT TRAINING

2022 | Deaf Awareness Training, Mental Health First Aid Training, Foundations of Supervision

RESEARCH OUTPUTS

Peer-reviewed Publications

1. **Moffat**, Roos, Casale & Cross. (2024). Dyadic body competence predicts movement synchrony during the mirror game. *Frontiers in Human Neuroscience*. doi: [10.3389/fnhum.2024.1401494](https://doi.org/10.3389/fnhum.2024.1401494)
2. **Moffat**, Caruana & Cross. (2024). Inhibiting responses under the watch of a recently synchronized peer increases self-monitoring: evidence from functional near-infrared spectroscopy. *Open Biology*. doi: [10.31234/osf.io/2n8sv](https://doi.org/10.31234/osf.io/2n8sv)
3. **Moffat** & Cross. (2024). Evaluations of dyadic synchrony: Observers' traits influence quantification and enjoyment of synchrony in mirror-game movements. *Scientific Reports*. doi: [10.1038/s41598-024-53191-0](https://doi.org/10.1038/s41598-024-53191-0)
4. **Moffat**, Casale & Cross. (2024). Mobile fNIRS for exploring inter-brain synchrony across generations and time. *Frontiers in Neuroergonomics*. doi: [10.3389/fnrgo.2023.1260738](https://doi.org/10.3389/fnrgo.2023.1260738)
5. **Moffat**, Baskent, Luke, McAlpine & van Yper. (2023). Cortical haemodynamic responses predict individual ability to recognise vocal emotions with uninformative pitch cues but do not distinguish different emotions. *Human Brain Mapping*. doi: [10.1002/hbm.26305](https://doi.org/10.1002/hbm.26305)
6. Caruana, **Moffat**, Blanco & Cross. (2023). Perceptions of intelligence & sentience shape children's interactions with robot reading companions. *Scientific Reports*. doi: [10.1038/s41598-023-32104-7](https://doi.org/10.1038/s41598-023-32104-7)
7. Caruana, **Moffat**, Blanco & Cross. (2022). Talk, listen and keep me company: A mixed methods analysis of children's perspectives towards robot reading companions. *Proceedings of the 10th International Conference on Human-Agent Interaction*. doi: [10.1145/3527188.3563917](https://doi.org/10.1145/3527188.3563917)

Other Publications

1. **Moffat**. (2024). Invisible mechanisms of interpersonal alignment. *Nature Reviews Psychology*. doi: [10.1038/s44159-024-00284-2](https://doi.org/10.1038/s44159-024-00284-2)

Preprints

1. **Moffat** & Cross. (2023). Awareness of embodiment enhances enjoyment and engages sensorimotor cortices. Under review. doi: [10.31234/osf.io/y5s89](https://doi.org/10.31234/osf.io/y5s89)
2. Cross*, Darda*, **Moffat**, Munoz, Humphries & Kirsch. (2023). Delightful Duets: Motor synchrony and mutual gaze enhance dance enjoyment and perceptions of socialness. Under review. doi: [10.31234/osf.io/25rwt](https://doi.org/10.31234/osf.io/25rwt) (*equal contribution)
3. Casale*, **Moffat*** & Cross. (2023). Aesthetic evaluation of body movements shaped by embodiment and arts experience: Insights from behaviour and fNIRS. Under review. doi: [10.31234/osf.io/n24kc](https://doi.org/10.31234/osf.io/n24kc) (*equal contribution)

Workshops & Invited Talks

1. Workshop: McAlpine, Luke & **Moffat**. "Using fNIRS to map auditory cortical function". IERASG, Jul 2019.
2. Invited talk: **Moffat**, Baskent, Luke, McAlpine & van Yper. "Towards an fNIRS paradigm to map emotional prosody processing". Sunnybrook Health Science Centre, Feb 2020.

Conference Talks

1. **Moffat** & Cross. "Rose-tinted embodiment: Mirroring impacts enjoyment, empathy, and cortical activity when observing synchronous movements". fNIRSUK, Sep 2023.
2. **Moffat** & Cross. "Observer's traits predict accuracy of synchrony estimation and enjoyment of dyadic mirror-game movements". JAM 9, Jul 2023.
3. **Moffat**, Caruana & Cross. "Cortical correlates of inhibition when observed by synchronised vs. non-synchronised peers". SFN, Nov 2022.
4. **Moffat**, Baskent, Luke, McAlpine & van Yper. "Exploring metabolic responses to emotional prosody with fNIRS". Listen and Learn Workshop, Nov 2019.
5. **Moffat**, Baskent, Luke, McAlpine & van Yper. "Pilot: Processing emotional prosody in normal hearing listeners with fNIRS". CIAP, Jul 2019.

Conference Posters

1. **Moffat**, Portier, Häuselmann, Casale & Cross. "Intergenerational social interactions: How do motor and neural synchrony develop over time." SANS, Apr 2024.
2. Casale, **Moffat** & Cross. "Arts engagement and embodied experience shape our aesthetic perceptions of socially-intentioned body movements". ACNS, Nov 2023.
3. Peterson, Roberts, **Moffat** & Polito. "The relationship between altered states of consciousness, nature relatedness, and pro-environmental behaviour". 3rd Psychedelic Symposium UW Madison, Nov 2023.
4. **Moffat** & Cross. "Quantifying observed motor synchrony: Movement predictability and inter-individual traits predict accuracy". EPC, Apr 2023.
5. Casale, **Moffat** & Cross. "Art experience enhances enjoyment of dynamic human movement". EPC, Apr 2023.
6. **Moffat**, Caruana & Cross. "Cortical activity evoked by synchronised vs. non-synchronised peer observers as detected with fNIRS". fNIRS2022, Oct 2022.
7. Caruana, **Moffat**, Blanco & Cross. "A welcome social presence: Attentive and responsive robot reading buddies are preferred". AS4SAN, Jun 2022.
8. **Moffat**, Baskent, Luke, McAlpine & van Yper. "Cortical responses to vocal emotions with attenuated voice pitch variation measured with fNIRS". sfNIRS, Oct 2021.
9. **Moffat**, Baskent, Luke, McAlpine & van Yper. "Pilot: Mapping emotional prosody in normal hearing listeners with fNIRS". ARO, Jan 2020.
10. **Moffat**, Baskent, Luke, McAlpine & van Yper. "Pilot: Using fNIRS to explore emotional prosody perception". SPIN, Jan 2020.