

WIM POWW

Research Fellow

Donders Center for Brain, Cognition, and Behaviour, Radboud University Nijmegen

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RESEARCH INDICES

Citations: 1401

h-index: 19

i10-index: 27

#Publications total: 44

#Pubs. (Journal only): 34

#Pubs. 1st author: 35

#Pubs. last/senior author: 3

GRANTS

- 2022 DFG VICOM (co-PI: 453k)
- 2022 Donders Postdoc fund (PI: 1k)
- 2021 Erasmus+ Staff training grant (PI: 5k)
- 2021 Language in Int. (PI: 73k)
- 2020 NWO VENI (PI: 250k)
- 2017 NWO Rubicon (PI: 134k)
- 2016 Erasmus Support Programme (PI: 3k)
- 2015 Erasmus Support Programme (PI: 1k)

AWARDED FELLOWSHIPS

Donders Fellowship (2yrs)

TEAM

Šarka Kadavá (PhD student)
Lara Burchardt (RA)

PREVIOUS INTERNS

ABOUT ME

I am a cognitive scientist (age 35) at the Radboud University Nijmegen studying sound production and its coordination with body movements. My overall research program is about understanding how these multiple bodily systems can come to coordinate (e.g., synchronize) in a way that allows for novel or more stable communicative behavior to emerge. My expertise lies in quantitative approaches of body movement analysis (e.g., motion tracking methodology, time series analysis) which I combine with acoustic analyses. I combine a wide range of theoretical (4E, dynamical systems, human movement science, phonetics, psychology) and methodological (e.g., experimental psychology, data science, open science and computational reproducibility) interests in my research.

ACADEMIC WORKING EXPERIENCE

Radboud University Nijmegen | Donders Center for Brain, Cognition, and Behaviour

Sep 2021 - Mar 2026

Nijmegen, The Netherlands

- Research Fellow, supported by VENI grant & Donders
- Concentrations: Multimodal Communication; Vocalization; Respiration; surface EMG; Movement science & Biomechanics

Language and Interaction consortium

Dec 2022 - Jun 2024

Nijmegen, The Netherlands

- Principal Investigator
- Concentrations: Motion analyses; Multimodal Alignment in Conversation

Leibniz-Zentrum Allgemeine Sprachwissenschaft (ZAS)

Sep 2021 - Dec 2021

Berlin, Germany

- Visiting researcher
- Concentrations: Bioacoustics and the respiratory foundations of speech
- Senior Collaborator: Susanne Fuchs, PhD

Radboud University Nijmegen | Donders Center for Brain, Cognition, and Behaviour

Nov 2019 - Sep 2021

Nijmegen, The Netherlands

- Postdoctoral Fellow, funded by a Donders fellowship
- Concentrations: Large-scale Quantification of Multimodal Language Patterns; Multimodal Alignment in Conversation
- Supervisor: Asli Ozyurek, PhD

Juliette Lozano-Goupil
Chiara Luna Rivolta

SKILLS

CLICK FOR SAMPLES

R & RMarkdown

Python & Jupyter notebooks

Data dashboards

HTML5 & CSS

Time series

Open science & Pre-regs

Computational reproducibility

Computer vision application

Motion tracking

Surface Electromyography

Respiration

Acoustic analyses

4E cognition

LANGUAGES

Dutch: Native

English: Fluent

AD-HOC RE-VIEWS

Acta Psychologica (3x)
Advances in Cognitive Psychology (1x)
Behavior Information Technology (1x)
Behavior Research Methods (3x)
British Journal of Psychology (2x)
Cognitive Neuroscience (1x)
Cognitive Science (4x)
Ecology and Evolution (1x)
Educational Psychologist (1x)
Educational Psychology Review (9x)
Frontiers in Cognition (1x)
Gesture (2x)
International Journal of Child-Computer Interaction (2x)
Journal of Computer Assisted Learning (1x)
Journal of Experimental Psychology: Human Perception and Performance (1x)

University of Connecticut | Center for the Ecological Study of Perception and Action

📅 Sep 2017 - Sep 2021

📍 Storrs, USA

- Visiting Postdoctoral Researcher, self-funded (Rubicon grant)
- Concentrations: Multimodal communication, Gibsonian Psychology, Perception & Action, Complex Systems
- Supervisor: James Dixon, PhD

Erasmus University Rotterdam | Institute of Psychology

📅 Jun 2016 - Sep 2017

📍 Rotterdam, The Netherlands

- Postdoc, self-funded (Rubicon grant)
- Concentrations: Gesture & Learning, Embedded and Embodied Cognition
- Supervisor: Fred Paas, PhD

University of Wollongong | Early Start Research Institute (ESRI)

📅 Feb 2015 - Jul 2015

📍 Wollongong, Australia

- Visiting Associate Fellow
- Concentrations: Human Movement and Learning, Radically Embodied, Embedded, Enactive Cognition
- Supervisor Movement & Learning Track: Fred Paas, PhD
- Supervisor Philosophy Track: Daniel Hutto, PhD

EDUCATION

Erasmus University Rotterdam | Institute of Psychology

📅 Oct 2012 - Jun 216

📍 Rotterdam, The Netherlands

- PhD Candidate
- Concentrations: Embodied/Embedded/Extended Cognition, Learning & Instruction, Instructional Animations
- Promoters: Tamara van Gog, PhD, Fred Paas, PhD, Rolf Zwaan, PhD
- Dissertation title: The cognitive function of manual activity in learning and problem solving
- Date Approved Defense Committee: 7th Oct. 2016
- Date of Defense: 16th March 2017

VU University Amsterdam | Theoretical Psychology

📅 Sep 2011 - Jul 2012

📍 Amsterdam, The Netherlands

- 1yr Master (Msc)
- Concentrations: Theoretical Psychology, Philosophy of Mind, Situated and Embodied Cognition, Embodied Simulation, Ecological Psychology, Phenomenology, Enactivism
- M-Thesis: Rethinking Situated and Embodied Social Psychology (grade: 9.0) - Published in *Theory and Psychology*
- Supervisor: Huib Looren de Jong, PhD
- mean grade [weighted]: 8.6

VU University Amsterdam | Social Psychology

📅 Sep 2009 - Jul 2011

📍 Amsterdam, The Netherlands

Journal of Experimental Psychology: Learning, Memory and Cognition (2x)
Journal of Non-verbal Behavior (1x)
Journal of Numerical Cognition (1x)
Journal of Speech, Language, and Hearing Research (3x)
Journal of the Acoustical Society of America (2x)
Language (1x)
Learning and Instruction (3x)
Methods in Psychology (2x)
PeerJ (1x)
Psychonomic Bulletin and Review (1x)
Psychophysiology (1x)
Personality and Social Psychology Bulletin (1x)
Scientific Reports (2x)
Theory Psychology (3x)
Agence de Nationale de La Recherche (ANR)
MMSYM2023 (9x)
GESPIN2019 (2x)
Creativity and Cognition 2021
MMSYM (6x)

SERVICE

Scientific Committee Citylab (current)
Organizer GESPIN2023 (current)
Vice-chairman student union SRVU (2010-2011)

- 2yr Research Master Social Psychology (Msc)
- Concentrations: Social perception; Group Dynamics; Social Neuroscience; Agency; Embodiment
- Research project: Embodiment of warmth in interpersonal relations – Published in *Acta Psychologica* (Supervisor: Hans IJzerman, PhD)
- *Cum Laude*, mean grade [weighted]: 8.4

VU University Amsterdam | Psychology

📅 Sep 2006 – Jul 2009

📍 Amsterdam, The Netherlands

- 3yr Bachelor of Science

UNDERGRADUATE ACADEMIC WORKING EXPERIENCE

VU University Amsterdam | Department of Sociology

📅 Sep 2010 – Jul 2012

📍 Amsterdam, The Netherlands

- KNAW student assistant
- Project: Collective action in emerging neighborhoods – Published in *Journal of Social en Political Psychology*
- Supervisor: Jacqueline van Stekelenburg, PhD

VU University Amsterdam | Development Psychology

📅 Sep 2010 – Jul 2012

📍 Amsterdam, The Netherlands

- Test coordinator
- Supervisor: Barbara Menting

TEACHING EXPERIENCE & CODING WORKSHOPS

Supervisor Master Theses | Donders Center for Brain, Cognition, and Behavior

📅 2022 – 2023

📍 Nijmegen, The Netherlands

Co-coordinator Envision Bootcamp 2-day workshop | Hasso Plattner Institute

📅 2021

📍 Potsdam, Germany

Supervisor Master Theses | Donders Center for Brain, Cognition, and Behavior

📅 2022 – 2023

📍 Nijmegen, The Netherlands

Workgroup Tutor Msc Course 'Applied Multivariate Data Analysis' | Erasmus University Rotterdam

📅 2016 – 2017

📍 Amsterdam, The Netherlands

Co-coordinator Bsc Course 'History and Philosophy of Science' | Erasmus University Rotterdam

📅 2014 – 2015

📍 Rotterdam, The Netherlands

Workgroup Tutor Bsc Course 'History and Philosophy of Science' | Erasmus University Rotterdam

📅 2013 – 2015

📍 Rotterdam, The Netherlands

Supervisor Bachelor and Master Theses | Erasmus University Rotterdam

📅 2013 – 2017

📍 Rotterdam, The Netherlands

INVITED LECTURES & RECORDED TALKS (SELECTED)

'Multimodality in Speech' Invited seminar at summer school 'Coping with the complexity in speech production and perception'

📅 2022

📍 Chorin, Germany

📺 'Biomechanics as the primordial basis of co-speech gesture.' Presentation at The 7th International Conference "Ways to Protolanguage" (Protolang7)

📅 2021

📍 Online

📺 'Multimodal Language Production' Invited lecture Mind, Technology, and Society lecture Series | University of California Merced

📅 2019

📍 Merced, USA

PUBLICATIONS

1. Gregori, A., Amici F., Brillmayer, I., Cwiek, O., Fritzsche L., Fuchs, S., Henlein, A., Herbert, O., Kügler, F., Lemanski, J., Liebal, K., Lücking A., Mehler, A., Nguyen, K. T., Pouw, W., Prieto, P., Rohrer, P., Sanchez-Ramon, P.G., Schulte-Rüther, M., Schumacher, P., Schweinberger, S., Struckmeier, V., Trettenbrein P., von Eiff, C. (Accepted). A roadmap for technological innovation in multimodal communication research. **Proceedings of the 25th International Conference on Human-Computer Interaction (HCI2023)**.

2. Jenkins**, T., Pouw**, W. (2023). A kinematic-acoustic analysis of gesture-speech coupling in aphasia. **Journal of Experimental Psychology: General**.

doi: 10.1037/xge0001346 **Shared first author

📄 Open Data & Code OSF | 📄 Open Access (Author Copy)

3. Kadavá, Š., Cwiek, A., Fuchs, S., Pouw, W. (Accepted). Is gesture-speech physics at work in rhythmic pointing? Evidence from Polish counting-out rhymes. **Proceedings of the 20th International Congress of Phonetic Sciences (ICPhS)**, Prague, 7-8 August 2023.

📄 Open Data & Code OSF | 📄 Open Access (Postprint)


4. Owoyele, B., Trujillo, J., De Melo, G., Pouw, W. (2022). Masked-Piper: Masking personal identities in visual recordings while preserving multimodal information. **SoftwareX**. doi: 10.1016/j.softx.2022.101236

📄 Code Github | 📄 Open Access

5. Pouw, W., Fuchs, S. (2022). Origins of vocal-entangled gesture. **Neuroscience and Biobehavioral Reviews**. doi: 10.1016/j.neubiorev.2022.104836



📄 Press coverage | 📄 Open Access

6. Eijk, L., Rasenberg, M., Arnese, F., Blokpoel, M., Dingemanse, M., Doeller, C., Ernestus, M., Holler, J., Milivojevic, B., Ozyurek, A., Pouw, W., van Rooij, I., Schriefers, H., Toni, I., Trujillo, J., Bogels, S. (2022). The CABB dataset: A multimodal corpus of communicative interactions for behavioural and neural analyses. **NeuroImage**. doi: 10.1016/j.neuroimage.2022.119734

 Open Access



7. Pouw, W., Harrison, S. J., Dixon, J. A. (2022). The importance of visual control and biomechanics in the regulation of gesture-speech synchrony for an individual deprived of proprioceptive feedback of body position.

Scientific Reports. doi: 10.1038/s41598-022-18300-x


 Open Code OSF |  Open Access

8. Pouw, W., Harrison, S. J., Dixon, J. A. (2022). The importance of visual control and biomechanics in the regulation of gesture-speech synchrony for an individual deprived of proprioceptive feedback of body position.



Scientific Reports. doi: 10.1038/s41598-022-18300-x

 Open Data & Code OSF |  Open Access

9. Pouw, W., Dixon, J. A. (2022). What you hear and see specifies the perception of a limb-respiratory-vocal act (commentary Bosker & Peeters, 2022). **Proceedings of the Royal Society B**. doi: rspb.2022.1026




 Open Access

10. Pearson**, L., Pouw**, W.(2022). Gesture-vocal Coupling in Karnatak Music Performance: A Neuro-bodily Distributed Aesthetic Entanglement. **Annals of the New York Academy of the Sciences**. doi: 10.1111/nyas.14806 **Shared first author

 Open Data & Code OSF |  Open Access


11. Pouw, W., Dingemanse, M., Motamedi, Y., Ozyurek, A. (2022). A systematic investigation of gesture kinematics in evolving manual languages in the lab.

Cognitive Science. doi: 10.1111/cogs.13014

 Open Data & Code Github |  R-Markdown Notebook |  Open Access

12. Pouw, W., Proksch, S., Drijvers, L., Gamba, M., Holler, J., Christopher, K., Scheafer, R., Wiggins, G. (2021). Rhythm interaction when communication goes multimodal.

Transactions of the Royal Society B: Biological Sciences. doi: 10.1098/rstb.2020.0334

 Open Access (Postprint)

13. Pouw, W., de Wit, J., Bögels, S., Rasenberg, M., Milivojevic, B., Ozyurek, A. (2021). Semantically related gestures move alike: Towards a distributional semantics of gesture kinematics. In: Duffy V.G. (eds) **Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management. Human Body, Motion and Behavior. HCII 2021. Lecture Notes in Computer Science, vol 12777**. Springer, Cham. doi: 10.1007/978-3-030-77817-0_20




 Open Data & Code OSF |  Open Access (Author Copy)

14. Brown, A., Pouw, W., Brentari, D., Goldin-Meadow, S. (2021). When hands are used to communicate they are less susceptible to illusion than when they are used to estimate. **Psychological Science**. doi:10.1177/0956797621991552

 Open Data & Code OSF |  Open Access (Author Copy)

15. Pouw, W., de Jonge-Hoekstra, L., Harrison, S., J., Paxton, A., Dixon, J. A. (2021). Gesture-speech physics in fluent speech and rhythmic upper limb movements.

Annals of the New York Academy of the Sciences. doi: 10.1111/nyas.14532

 Open Data OSF |  R-Markdown Notebook |  Open Access

16. Pouw, W., Paxton, A., Harrison, S. J., Dixon, J. A. (2020). Reply to Ravignani and Kotz: Physical impulses from upper-limb movements impact the respiratory-vocal system (reply to Ravignani & Kotz, 2022). **PNAS**. doi: 10.1073/pnas.2015452117

17. Pouw, W., Harrison, S. J., Esteve-Gibert, N., Dixon, J.A. (2021). Energy flows in gesture-speech physics: The respiratory-vocal system and its coupling with hand gestures. **The Journal of the Acoustical Society of America** . doi: 10.1121/10.0001730
📄 Pre-registration | 🗄️ Open Data & Code OSF | ↓ Open Access (Author Copy)

18. Hostetter, A., Pouw, W., Wakefield, E. (2021). Learning from gesture and action: An investigation of memory for where objects went and how they got there. **Cognitive Science** . doi: 10.1111/cogs.12889
📄 Pre-registration | 🗄️ Open Data & Code OSF | ↓ Open Access

19. Pouw, W., Jaramillo, J., Dixon, J.A., Ozyurek, A. (2020). Quasi-rhythmic features of hand gestures show unique modulations within languages: Evidence from bilingual speakers. **Proceedings of the 7th meeting of Gesture and Speech in Interaction - GESPIN2020** .
↓ Open Access (Author Copy)

20. Dowell, C., Hajnal, A., Pouw, W. , Wagman, J. (2020). Visual and haptic perception of affordances of feelies. **Perception** . doi: 10.1177/0301006620946532
↓ Open Access (Author Copy)

21. Pouw, W., Paxton, A., Harrison, S. J., Dixon, J. A. (2020). Acoustic information about upper limb movement in voicing. **PNAS** . doi: 10.1073/pnas.2004163117
📄 Pre-registration | 🗄️ Open Data & Code OSF | ↓ Open Access

22. Pouw**, W., Trujillo**, J.P., Dixon, J.A. (2020). The quantification of gesture-speech synchrony: An overview and validation of video-based motion tracking. **Behavior Research Methods** . doi: 10.3758/s1342 **Shared first author
🗄️ Open Data OSF | ↓ Open Access

23. Pouw, W., Dixon, J. A. (2020). Gesture networks: Introducing dynamic time warping and network analysis for the kinematic study of gesture ensembles. **Discourse Processes** . doi: 10.1080/0163853X.2019.1678967
🗄️ Open Data and Code OSF | ↓ Open Access

24. Pouw, W., Harrison, S. J., Dixon, J. A. (2020). Gesture-speech physics: The biomechanical basis for the emergence of gesture-speech synchrony. **Journal of Experimental Psychology: General** . doi: 10.1037/xge0000646
📄 Pre-registration | 🗄️ Open Data and Code OSF | ↓ Open Access (Author Copy)

25. Pouw, W., Dixon, J. A. (2020). Entrainment and modulation of gesture-speech synchrony under delayed auditory feedback. **Cognitive Science** . doi: 10.1111/cogs.12721
📄 Pre-registration | 🗄️ Open Data and Code OSF | ↓ Open Access (Author copy)

26. Pouw**, W., Rop**, G., de Koning, B., Paas, F. (2019). The cognitive basis for the split-attention effect. **Journal of Experimental Psychology: General** . doi: 10.1037/xge0000578 **Shared first authorship
📄 Pre-registration (exp. 2) | 🗄️ Open Data and Code OSF | ↓ Open Access (Institute Repo)

27. Kamermans, K. L.**, Pouw**, W., Fassi, L., Aslanidou, A., Paas, F, Hostetter, A. (2019). R reinterpretation in multimodal imagery and the role of manual enactment. **Acta Psychologica** . doi: 10.1037/xge0000578 **Shared first authorship
🗄️ Open Data OSF | ↓ Open Access (Institute Repo)

28. Pouw, W., Dixon, J. A. (2019). Quantifying gesture-speech synchrony. **Proceedings of the 6th meeting of Gesture and Speech in Interaction - GESPIN6** . doi: 10.17619/UNIPB/1-815

29. Kamermans**, K., Pouw**, W., Mast, F. W., Paas, F (2019). Reinterpretation in Visual Imagery Is Possible without Visual Cues: A Validation of Previous Research. **Psychological Research** . doi: 10.1007/s00426-017-0956-5 **Shared first authorship
Open Data OSF | Open Access

30. Pouw, W. **, Wassenburg, S. **, de Koning, B., Hostetter, A., Paas, F (2018). Does gesture strengthen sensorimotor knowledge of objects? The case of the size-weight illusion. **Psychological Research**. . doi: 10.1007/s00426-018-1128-y **Shared first authorship
Pre-registration | Open Data & Code OSF | Open Access

31. Eielts**, C., Pouw**, W., Ouwehand, K., Van Gog, T., Zwaan, R. A., Paas, F (2018). Co-thought gesturing supports more complex problem solving in subjects with lower visual working-memory capacity. **Psychological Research** . doi: 10.1007/s00426-018-1065-9 **Shared first authorship
Open Data OSF | Open Access

32. Pouw, W. Gog, T., Zwaan, R. A., Agostinho, S., Paas, F (2018). The role of co-thought gestures, visual working memory, and task complexity in problem-solving: A replication study with children (8-12 yrs). **Applied Cognitive Psychology** . doi: 10.1002/acp.3380
Pre-registration | Open Data OSF | Open Access (Postprint)

33. Pouw, W., Aslanidou, A., Kamermans, K., Paas, F (2017). Is ambiguity detection in haptic imagery possible? Evidence for enactive imaginings. In G. Gunzelmann, A. Howes, T. Tenbrink, & E. J. Davelaar (Eds.), **Proceedings of the 39th Annual Conference of the Cognitive Science Society** (pp. 2925-2930). Austin, TX: Cognitive Science Society.
Open Data OSF | Open Access

34. Pouw, W. T. J. L., Van Gog, T., Zwaan, R. A., Paas, F (2017). Are gesture and speech mismatches produced by an integrated gesture-speech system? A more dynamically embodied perspective is needed for understanding gesture-related learning (Commentary Goldin-meadow & Brentari, 2017) **Behavioral and Brain Sciences** . doi: 10.1017/S0140525X15003039
Open Access (Author Copy)


35. Van Wermeskerken, M., Fijan, N., Eielts, E. C., Pouw, W. (2016). Co-thought gesturing supports more complex problem solving in subjects with lower visual working-memory capacity. **Applied Cognitive Psychology** . doi: 10.1002/acp.3256
Open Access (Postprint)


36. Pouw, W., van Gog, T., Zwaan, R. A., Paas, F. (2016). Augmenting Instructional Animations with Sensori-motor Information to Help Children Learn about Physical Systems **Frontiers in Psychology** . doi: 10.3389/fpsyg.2016.00860
Open Access)


37. Pouw, W. T. J. L. Hostetter, A. (2016). Gesture as predictive action. **Reti, Saperi, Linguaggi: Italian Journal of Cognitive Sciences** . doi: 10.12832/83918
Open Access (Postprint)


38. Pouw, W., Eielts, E. C., van Gog, T., Zwaan, R. A., Paas, F. (2016). Does (non-)meaningful sensori-motor engagement promote learning with animated physical Systems? **Mind, Brain & Education** . doi: 10.1111/mbe.12105
Open Access (Postprint)



39. Pouw, Mavilidi, M., Van Gog, T., Paas, F. (2016). Gesturing during mental problem solving reduces eye movements, especially for individuals with lower visual working memory capacity. **Cognitive Processing** . doi: 10.1007/s10339-016-0757-6 Open

40. Pouw, W. T. J. L., de Jong, H (2015). Rethinking situated and embodied social psychology. Gesturing during mental problem solving reduces eye movements, especially for individuals with lower visual working memory capacity. **Theory and Psychology** . doi: 10.1177/0959354315585661  Open Access (Postprint)

41. Pouw, W., De Nooijer, J. A., Van Gog, T., Zwaan, R. A., Paas, F. (2014a). Toward a more embedded/extended perspective on the cognitive function of gestures. **Frontiers in Psychology** . doi: 10.3389/fpsyg.2014.00359  Open Access

42. Pouw, W., Van Gog, T., Paas, F. (2014b). An embedded and embodied cognition review of instructional manipulatives. **Educational Psychology Review** . doi: 10.1007/s10648-014-9255-5  Open Access

43. Van Stekelenburg, J., Petrovic, I., Pouw, W., Limburg, N., Nederlof, N. (2013). From correlation to causation: The cruciality of a collectivity in the context of collective action. **Journal of Social and Political Psychology** . doi: 10.5964/jspp.v1i1.38  Open Access

44. IJzerman, H., Gallucci, M., Pouw, W., Weissgerber, S. C., Van Doesum, N. J., Williams, K. D. (2012). Cold-blooded loneliness: Social exclusion leads to lower finger temperatures. **Acta Psychologica** . doi: 10.1016/j.actpsy.2012.05.002  Open Data & Code OSF |  Open Access (Postprint)
