

Ladislav Nalborczyk

POSTDOCTORAL RESEARCHER

GIPSA-lab, CNRS, Univ. Grenoble Alpes
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Research interests

I am a cognitive scientist interested in the conscious experience of imagined actions (motor imagery, covert speech) and in their neural, psychophysiological, and cognitive correlates. In the fundamental part of my research, I am using a combination of behavioural, psychophysiological, and computational methods to evaluate predictions of motor control models applied to imagined actions. In the applied dimension of my research, I am using machine learning and deep artificial neural networks to decode the content of both overt and covert verbal actions from electrophysiological data. In parallel, I also work on the development and dissemination of rigorous experimental and statistical methods for psychological research.

Academic positions

Institute of Language, Communication and the Brain

Marseille, France

POSTDOCTORAL RESEARCHER

April 2021 – March 2023

What are the inhibition mechanisms underlying inner verbal actions? Clarifying the implementation and timecourse of these mechanisms during inner speech and inner typing.

GIPSA-lab, CNRS

Grenoble, France

POSTDOCTORAL RESEARCHER

March 2020 – February 2021

Working on decoding the neural (electrocorticographic) correlates of overt and inner speech using machine learning algorithms and deep artificial neural networks.

Univ. Grenoble-Alpes & Ghent University

Grenoble (France) & Ghent (Belgium)

PHD STUDENT

October 2015 – September 2019

Research on the psychophysiological correlates of mental rumination and the role of the speech motor system in rumination.

Teaching data analysis and cognitive psychology in a Psychology BA.

Laboratoire de Psychologie et NeuroCognition, CNRS

Grenoble, France

MSC RESEARCH INTERNSHIP

February 2015 – June 2015

Five months research internship, working on the facial electromyographic correlates of induced mental rumination.

Education

Univ. Grenoble Alpes (France) & Ghent University (Belgium)

Joint PhD in Clinical, Experimental, and Cognitive Psychology 2015 – 2019

Thesis title: Understanding rumination as a form of inner speech 

Supervisors: Dr. H el ene L evenbruck (UGA), Pr. Ernst Koster (UGent), & Dr. Marcela Perrone-Bertolotti (UGA)

Grenoble Institute of Technology (France)


MSc in Cognitive Science, June 2015

Supervisors: Dr. H el ene L evenbruck (UGA) & Dr. Marcela Perrone-Bertolotti (UGA)


Pierre-Mendes France University (France)


BA in Psychology, June 2013

Publications


When applicable, preregistration, preprint, data, code, and supplementary materials are available online by clicking on the  icon.


IN THE PIPELINE


Nalborczyk, L. (*submitted*). Re-analysing the data from Moffatt et al. (2020): A textbook illustration of the absence of evidence fallacy. 


Nalborczyk, L., Perrone-Bertolotti, M., Baeyens, C., Grandchamp, R., Spinelli, E., Koster, E.H.W., & Løevenbruck, H. (*under review*). Articulatory suppression effects on induced rumination. 

PEER-REVIEWED JOURNAL ARTICLES


[9] Beffara, B., Bret, A., & **Nalborczyk, L.** (*in press*). A fully automated, transparent, reproducible and blind protocol for sequential analyses. *Meta-Psychology*. 


[8] **Nalborczyk, L.**^{*}, Banjac, S.^{*}, Baeyens, C., Grandchamp, R., E., Koster, E.H.W., Perrone-Bertolotti, M., & Løevenbruck, H. (*in press*). Dissociating facial electromyographic correlates of visual and verbal induced rumination. *International Journal of Psychophysiology*. 

[7] **Nalborczyk, L.**, Grandchamp, R., Koster, E.H.W., Perrone-Bertolotti, M., & Løevenbruck, H. (2020). Can we decode phonetic features in inner speech using surface electromyography? *PLOS ONE*, 15(5): e0233282. <https://doi.org/10.1371/journal.pone.0233282> 


[6] Molto, L., **Nalborczyk, L.**, Palluel-Germain, R., & Morgado, N. (2020). Action effects on visual perception of distances: A multilevel Bayesian meta-analysis. *Psychological Science*, 31(5), 488-504. <https://doi.org/10.1177/0956797619900336> 

[5] Landy, J. F., Jia, M., Ding I. L., Viganola, D., Tierney, W., ... **Nalborczyk, L.** ... Uhlmann, E. L. (2020). Crowdsourcing hypothesis tests: Making transparent how design choices shape research results. *Psychological Bulletin*, 146(5), 451-479. <https://doi.org/10.1037/bu10000220>

[4] **Nalborczyk, L.**, Batailler, C., Løevenbruck, H., Vilain, A., & Bürkner, P.-C. (2019). An introduction to Bayesian multi-level models using brms: A case study of gender effects on vowel variability in standard Indonesian. *Journal of Speech, Language, and Hearing Research* 62(5), 1225-1242. https://doi.org/10.1044/2018_JSLHR-S-18-0006 

[3] **Nalborczyk, L.**, Bürkner, P.-C., & Williams, D. (2019). Pragmatism should not be a substitute for statistical literacy, a commentary on Albers, Kiers, and van Ravenzwaaij (2018). *Collabra: Psychology*, 5(1): 13. <https://doi.org/10.1525/collabra.197> 

[2] Trafimow, D., Amrhein, V., Areshenkoff, C. N., Barrera-Causil, C., Beh, E. J., Bilgic, Y., ... **Nalborczyk, L.** ... Marmolejo-Ramos, F. (2018). Manipulating the alpha level cannot cure significance testing. *Frontiers in Psychology*, 9:699. <https://doi.org/10.3389/fpsyg.2018.00699>

[1] **Nalborczyk, L.**, Perrone-Bertolotti, M., Baeyens, C., Grandchamp, R., Polosan, M., Spinelli, E., ... Løevenbruck, H. (2017). Orofacial electromyographic correlates of induced verbal rumination. *Biological Psychology*, 127, 53-63. <https://doi.org/10.1016/j.biopsycho.2017.04.013> 

BOOK CHAPTERS


[2] Løevenbruck, H., Grandchamp, R., Rapin, L., **Nalborczyk, L.**, Dohen, M., Perrier, P., Baciú, M., & Perrone-Bertolotti, M. (2018). A cognitive neuroscience view of inner language: to predict and to hear, see, feel. In Langland-Hassan, P. & Vicente, A. (eds.), *Inner Speech: new voices*. Oxford University Press.

[1] Løevenbruck, H., **Nalborczyk, L.**, Perrone-Bertolotti, M., Baeyens, C., & Grandchamp, R. (2018). Un cas d'incarnation linguistique: implication du système moteur orofacial dans les ruminations mentales. *Recherches sur la philosophie et le langage*, numéro special "Cognition incarnée".

CONFERENCE PROCEEDINGS

[1] Molto, L., **Nalborczyk, L.**, Palluel-Germain, R., & Morgado, N. (2018). Action-specific effects on distance perception: A multilevel Bayesian meta-analysis. *Cognitive processing*, 19(S1), 1-76.
<https://doi.org/10.1007/s10339-018-0884-3>


PHD THESIS


Nalborczyk, L. (2019). Understanding rumination as a form of inner speech: probing the role of motor processes. Univ. Grenoble Alpes & Ghent University. 

Presentations

INVITED TALKS

[5] **Nalborczyk, L.** (2020). Introduction to the Open Science Framework. “Open November” open science webinar, RJC ACAPS.


[4] **Nalborczyk, L.** (2020). Bayesian multilevel models in R using brms. PPC seminar, GIPSA-lab, Grenoble, France. 


[3] **Nalborczyk, L.** (2019). An introduction to Bayesian multilevel models using R, brms, and Stan. R in Grenoble working sessions, Grenoble, France. 

[2] **Nalborczyk, L.** (2018). How to avoid common misinterpretations of p-values and Bayes factors. ENTPE seminars, Lyon, France. 

[1] Beffara, B., **Nalborczyk, L.**, Héjja-Brichard, Y., & Bret, A. (2017). Open, slow, and sustainable science. PhD student day, LPNC, Grenoble, France.

WORKSHOP TALKS


[3] **Nalborczyk, L.** (2020). Introduction to Bayesian Statistical Modelling in R. Semaine DATA-SHS, MSH-Alpes, Grenoble, France. 


[2] Beffara, B., Beffara-Bret, A., **Nalborczyk, L.**, Héjja-Brichard, Y., & Beffara-Bret, B. (2020). Introduction to the Open Science Framework. CRNL Workshop, “Publishing differently: new ways to evaluate and disseminate the scientific knowledge in the digital area”, Lyon, France. 

[1] **Nalborczyk, L.** (2018). Introduction to Bayesian Statistical Modelling. UGent specialist (doctoral) course on Bayesian statistical modelling, Ghent, Belgium. 

CONFERENCE TALKS

[8] Rouy, M., Saliou, P., **Nalborczyk, L.**, Pereira, M., Roux, P., & Faivre, N. (2020). Systematic review and meta-analysis of the calibration of confidence judgments in individuals with schizophrenia. Neuromatch 3.0 online conference.

[7] **Nalborczyk, L.** (2019). Modelling potential biases in sequential analyses procedures. Lightning talk at the meeting of the Society for the Improvement of Psychological Science, Rotterdam, The Netherlands. 

[6] **Nalborczyk, L.** (2018). Using information-theoretic approaches for model selection: moving from explanation toward prediction. Lightning talk at the meeting of the Society for the Improvement of Psychological Science, Grand Rapids, MI. 

[5] Molto, L., **Nalborczyk, L.**, Palluel-Germain, R. & Morgado, N. (2018). Action-specific effects on distance perception: A multilevel Bayesian meta-analysis. 7th International Conference on Spatial Cognition, Rome, Italy.

- [4] **Nalborczyk, L.** (2018). Sequential testing with information criteria and evidence ratios. *Bayes@Lund*, Sweden. [📄](#)
- [3] **Nalborczyk, L.**, Perrone-Bertolotti, M., Baeyens, C., Grandchamp, R., Spinelli, E., Koster, E.H.W., & Løevenbruck, H. (2017). Verbal rumination as simulated speech. Embodied and Situated Language Processing conference. Moscow, Russia. [📄](#)
- [2] **Nalborczyk, L.**, Perrone-Bertolotti, M., Baeyens, C., Keracheva, E., Grandchamp, R., Spinelli, E., Koster, E.H.W., & Løevenbruck, H. (2016). Rumination at the crossroads of embodied inner speech and emotion: facial electromyographic correlates. Consortium of European Research on Emotion (CERE). Leiden, Netherlands. [📄](#)
- [1] **Nalborczyk, L.**, Løevenbruck, H., Perrone-Bertolotti, M., Baeyens, C., & Grandchamp, R. (2016). Verbal rumination as an embodied orofacial action. International conference Language and Enaction. Clermont-Ferrand, France. [📄](#)
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CONFERENCE POSTERS

- [7] Beffara, B., Bret, A., & **Nalborczyk, L.** (2019). A practical tutorial for safe sequential analyses. International Convention of Psychological Science, Paris, France. [📄](#)
- [6] Molto, L., **Nalborczyk, L.**, Palluel-Germain, R., & Morgado, N. (2019). A Bayesian multilevel meta-analysis of action constraints effects on distance perception. International Convention of Psychological Science, Paris, France. [📄](#)
- [5] **Nalborczyk, L.**, Perrone-Bertolotti, Baeyens, C., Grandchamp, R., Spinelli, E., Koster, E.H.W., & Løevenbruck, H. (2018). Can articulatory suppression disrupt repetitive negative thinking ? The 16th European Workshop on Imagery and Cognition, Padua, Italy. [📄](#)
- [4] Molto, L., **Nalborczyk, L.**, Palluel-Germain, R., & Morgado, N. (2018). Action-specific effects on distance perception: A multilevel Bayesian meta-analysis. The 16th European Workshop on Imagery and Cognition, Padua, Italy. [📄](#)
- [3] Løevenbruck, H., Grandchamp, R., Rapin, L., **Nalborczyk, L.**, Dohen, M., Perrier, P., Baci, M., & Perrone-Bertolotti, M. (2018). A neurocognitive predictive model of willful inner speech production. The Probabilistic Brain Workshop, Durham, England. [📄](#)
- [2] **Nalborczyk, L.**, Løevenbruck, H., Keracheva, E., Koster, E.H.W., Baeyens, C., Grandchamp, R., & Perrone-Bertolotti, M. (2017). Articulatory suppression effects on verbal rumination. Cognitive Science Arena. Brixen, Italy. [📄](#)
- [1] **Nalborczyk, L.**, Baeyens, C., Grandchamp, R., Løevenbruck, H., Perrone-Bertolotti, M., & Polosan, M. (2015). Orofacial electromyographic correlates of induced verbal rumination. Embodied and Situated Language Processing conference. Lyon, France. [📄](#)

Software

Batailler, C., & **Nalborczyk, L.** (2017). *maskr*. R package version 0.0.1, available on [Github](#).

Nalborczyk, L. (2017). *ESTER: Efficient Sequential Testing with Evidence Ratios*. R package version 0.2.0, available on [Github](#).

Teaching Experience

LECTURES, COURSES (>200H)

Bachelor courses

Data Analysis, UGA, 2016 (36h)

Introduction to Cognitive Psychology, UGA, 2016 (50h)

Cognitive Psychology: Perception, Action and Categorisation, UGA, 2016 (42h)

Doctoral courses

Introduction to Bayesian statistical modelling, UGA, 2017, 2018, 2019, 2020 (76h)

CO-SUPERVISION OF MASTER STUDENTS

Sonja Banjac, Master 2 in Cognitive Science, UGA, 2017–2018

Myriam El-Helou, Master 1 in Applied Mathematics and Informatics, UGA, 2016–2017

Elena Keracheva, Master 1 in Clinical Psychology, UGA, 2015–2016

Fellowships, Grants and Awards

Post-doctoral research grant, Institute of Language, Communication and the Brain (2021–2023)

Post-doctoral research grant, Fyssen foundation (2020–2022), 60k€ (*declined for personal reasons*)

Travel grant, Society for the Improvement of Psychological Science (2019), 350€

Travel grant to attend the SIPS 2018 conference, FWO (2018), ~1000€

Grant from the Flemish government to organise a doctoral course on Bayesian statistical modelling (2018), ~1000€

Univ. Grenoble Alpes: 3-year scholarship to pursue a joint PhD (2015–2018)

Academic Services

Co-organiser of the doctoral school course *Introduction to Bayesian statistical modelling*, June 13th – 15th, 2018, UGent (Belgium)

Elected representative of the PhD students at the academic council and the research committee of the UGA (2015–2017)

Ad hoc reviewing

Cognition and Emotion

Language, Cognition and Neuroscience

Annals of Physical and Rehabilitation Medicine

Psychology of Consciousness: Theory, Research, and Practice

Professional Memberships

Center for Open Science, Ambassador (2017–Present)

Member of the *Psychological Science Accelerator* (2018–Present)

Society for the Improvement of Psychological Science (2017–Present)

Cognitive Science Society (2020–Present)

Other Contributions

ACTIVE MEMBER OF LOCAL ASSOCIATIONS FOR SCIENTIFIC COMMUNICATION

Member of the organising team of the 6th edition of *Pint Of Science France*, Grenoble, 2016

Member of the organising team of the 9th edition of the *ArtScienceTechnologie* event, Grenoble, 2015

POPULARISATION TALKS

Et si penser était une action ? *15th cognitive sciences forum, science slam*, Paris, 2016.

Technical Skills

EXPERIMENTAL TOOLS

Electromyography, electrocardiography, eye-tracking

COMPUTER TOOLS

Programming: R, Shiny, Python, *Matlab*, Octave

Experiment design: OpenSesame, PsychoPy, *E-prime*

Physiological data processing: *LabChart*, KubiosHRV, R, Python

Statistical modelling: R, Python, JASP, Jamovi, *SPSS*, *Statistica*

Deep learning: Python, R, Keras

Version control: Git, Github

Collaborative and reproducible writing: RMarkdown, \LaTeX , Overleaf, Zotero

Open Science: Github, Open Science Framework, PsyArXiv

NB: emphasised proprietary software programs will tend to disappear from my toolkit

Languages

French: Native

English: Full professional proficiency

Dutch: Beginner (CEFR: A2)

References

Available upon request