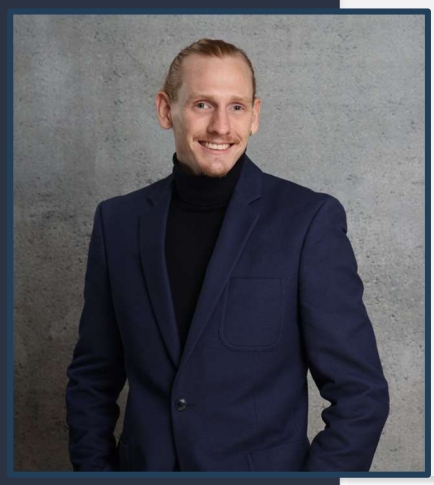
CURRICULUM VITAE



LUKAS BÖGGE

Psychophysiology Research Engineer

Profile Statement

I develop systems that interface biological signals with technology. With a background in cognitive neuroscience and biomedical engineering, I work on closed-loop adaptive systems that combine behavioral paradigms, multimodal biosignal processing, and immersive technologies to investigate and modulate human self-regulation. I design, implement, and analyze experimental and prototype systems that translate physiological insights into technological approaches for digital health and human–machine interaction.

CONTACT

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ABOUT ME

Date of birth: 11.04.1993

Place of birth: Germany

Marital status: Single

TECHNICAL SKILLS

Programming & Analysis
C#, Python, R, MATLAB, Java

Experimental Tools
Unity3D, AcqKnowledge, NeuroKit2, LabView

Design
SolidWorks, AutoCAD

Data & Research Practices
Data management & protection (GDPR), Open Science, LaTeX

Education

PhD in Cognitive Neuroscience (10/2019 – 01/2024)
Université Paris Cité – Memory, Brain & Cognition Laboratory, France

- Dissertation: *Connecting and Stimulating Body and Mind through Heart Rate Variability Biofeedback: Effects on Cognitive Control and Self-Referential Processes in Memory and Thinking* – Supervision: Prof. P. Piolino, Examiner: Prof. J.F. Thayer
- Led and designed BIOTRAC 1, 2 & 3 projects (*BIO*feedback *TRA*ining and *C*ognition)
- Keywords: HRV biofeedback, heart-brain interaction, human-machine-interface, biosignal processing, virtual reality, digital health, self- and emotion regulation
- Evaluation: excellent (oral committee feedback: summa–magna cum laude)

M. Sc. (M2) in Bioengineering and Innovation in Neuroscience (09/2018 – 07/2019)
M. Sc. (M1) in Biomedical Engineering (09/2017 – 08/2018)
Paris Descartes University & ESPCI Paris & ENSAM ParisTech, France

- Interdisciplinary training in neuroengineering, BCI, AI, HMI, neuroimaging and robotics
- Distinction: 3rd of 24, 15.8/20 (French Grading)

B. Sc. in Mechanical Engineering – Materials Engineering (10/2012 – 08/2017)
Technical University of Dortmund, Germany

- Industrial research thesis at Robert Bosch GmbH (*excellent*, maximal grade)

Studies Abroad in Mechanical Engineering & Psychology (08/2014 – 01/2015)
Northern Arizona University, USA

Abitur (German–English bilingual), *Kopernikus-Gymnasium Rheine, Germany* (2012)

Research & Technical Experiences

Erasmus+ Pan-European Project POEM-SET Contributor (06/2022 – 03/2023)
Université Paris Cité, France

- Provided technical and education support to the development of a serious game to train medical staff in handling obstetric emergencies (VTS editor, Unity 3D)
- Collaborated with a Pan-European, interdisciplinary team across medicine, education, and technology

Planned Research Stay – Neurofeedback (10/2019 – 05/2020)
with Dr. Kathy Ruddy, Trinity College Dublin, Ireland
Designed methodology and completed literature review for BCI-based neurofeedback study on cognitive control & memory – data collection postponed due to COVID-19

LANGUAGES

German (native)

English (C2)

French (C1)

Spanish (B1)

GRANTS

Université Paris Cité

Initiative of Excellence (IDEX) international PhD scholarship

Symposium organization

Publication support

COMMUNITY & INTERNATIONAL

Lab student liaison

Erasmus Student Network

Student consultancy (VIA)

Buddy programs

Outstanding int. engagement

INTERESTS

Bridging disciplines for health

Gamification & technology

Mind-body practices (meditation, yoga, cacao)

Outdoor exploration & running

Cultural immersion

Research Internship – Cognitive Biofeedback Training in VR (02/2019 – 07/2019)
Paris Descartes – Memory, Brain & Cognition Laboratory, Paris

- Designed and evaluated VR-based mindfulness-biofeedback training to improve episodic memory, executive functions, and psychosomatic regulation

Research Internship – Human Cell Biology (04/2018 – 05/2018)
Institut Necker Enfants Malades – Cell biology Dept INSERM U1151, Paris

- Studied cellular stress responses – Cell culture, transfection, IF microscopy

Research Internship – Auditory Coding (02/2018 – 03/2018)
Paris Descartes – Laboratoire Psychologie de la Perception UMR 8242, Paris

- Implemented an information-theoretic model in MATLAB to analyze auditory coding

Bachelor Thesis, R&D Internship / Working Student (10/2016 – 08/2017)
Robert Bosch GmbH – PA-ATMO1/SGT12, Stuttgart, Germany

- R&D, prototyping, signal analysis & development of industrial testing systems
- Collaboration & supervision of trainees

Teaching & Academic Services

University Lecturer (2020 – 2022)
Université Paris Cité, France

- *English for Psychologists* – Psychology Bachelor (2020 – 2021)
- *Introduction to Python & Neuropsydia* – Neuropsychology Master (2021 – 2022)
- *VR for Experimental Psychology* – Biomedical Engineering Master (2021 – 2022)

Student Supervision (2019 – 2023)
Université Paris Cité, France

- Supervised five Master's and Bachelor's students across psychology and engineering

Independent Peer Reviewer for Scientific Journals (2024 – present)
Psychophysiology (Wiley), Frontiers in Human Neuroscience, Springer Nature (APPB)

Science Communication & Outreach (2019 – 2023)

- Organized lab-internal Journal Clubs
- Newspaper interview for *Le Monde* (2023, April 19). Réalité virtuelle…
- Demonstrated experiments to the public, researchers and students

Additional Training & Development

Mindfulness-Based Stress Reduction (MBSR) Teacher Training (2025 – 2026)
Achtsamkeitszentrum Berlin, Germany

World Travel, Independent Study & Cultural Immersion (2024 – 2025)
Europe, Ghana, Colombia

- Study and practice of contemplative and cross-cultural health practices
- Language training (Spanish) and residential yoga immersion

Student Business Consultant Training (2013)
VIA Studentische Unternehmensberatung e.V., Dortmund, Germany
Co-led 270h team project with training in management, communication, finance, and law

Scientific Communications

Peer-Reviewed Publications (Open-Access)

Bögge, L., Colàs-Blanco, I., La Corte, V., Gaston-Bellegarde, A., & Piolino, P. (2024). Autonomic and cognitive control in memory: Investigating the psychophysiological link using virtual reality biofeedback. *Psychophysiology*. doi: 10.1111/psyp.14588

Bögge, L., Colàs-Blanco, I., & Piolino, P. (2022). Respiratory sinus arrhythmia during biofeedback is linked to persistent improvements in attention, short-term memory, and positive self-referential episodic. *Frontiers in Neuroscience, 16.* doi: 10.3389/fnins.2022.791498

Manuscript Under Review, Preprint & Doctoral Thesis

Bögge, L., Colàs-Blanco, I., & Piolino, P. (*under review in Psychophysiology*). Cardiac vagal control during mental time travel and resting-state thought: Associations and HRV biofeedback effects.

Bögge, L. (2023). Connecting and stimulating body and mind through heart rate variability biofeedback: Effects on cognitive control and self-referential processes in memory and thinking (Number 2023UNIP7267) [Theses, Université Paris Cité]. https://theses.hal.science/tel-04838665

Guevara Erra, R., **Bögge, L**. (2022). Speech as a complex signal. Preprint (Version 1). doi: 10.21203/rs.3.rs-1365372/v1.

International Conference Symposia and Oral Presentations

Bögge, L., Schumann, A., Chikhi, S., Blanchet, S., Ros, T. (2023, June 26-29). Connecting mind and body with biofeedback: innovative and rigorous approaches to cognitive enhancement. [**Symposium chairing & presentation**]. 21st World Congress of Psychophysiology (IOP2023), Geneva, Switzerland.

Bögge, L., Colàs-Blanco, I., La Corte, V., Gaston-Bellegarde, A., & Piolino, P. (2023, July 11-13). Virtual reality biofeedback as a gateway to explore the interaction between cognitive control over memory and cardiac activity [Paper presentation]. 26th Annual CyperPsychology, CyberTherapy & Social Networking Conference, Paris, France.

Bögge, L., Colàs, I., & Piolino, P. (2022, September 19–24). Virtual reality HRV biofeedback elicits persistent cognitive improvements that are linked to the level of respiratory sinus arrhythmia during training [Paper presentation]. 21st Meeting of the Biofeedback Federation of Europe (BFE), Montesilvano, Italy.

Bögge, L., Colàs, I., & Piolino, P. (2022, March 23-26). Control your heart, enhance yourself: Biofeedback training in virtual reality improves self-referential episodic memory [Paper presentation]. AAPB 53rd Annual Scientific Meeting, Irving, Texas, United States. *Note*: The talk was postponed due to the COVID19 pandemic.

Bögge, L., Colàs, I., & Piolino, P. (2021, September 22-23). Control the heart, control the mind: biofeedback training in virtual reality improves memory and attention [Paper presentation]. European Workshop on Imagery and Cognition Special Meeting (EWIC), Cambridge, United Kingdom.

Bögge, L., Colàs, I., & Piolino, P. (2021, September 13-15). Control the heart, control the mind: biofeedback training in virtual reality improves memory and attention [Paper presentation]. 25th Annual CyperPsychology, CyberTherapy & Social Networking Conference, Milan, Italy.

Seminar and Journal Club Presentations

Bögge, L. (2021, July 2). BIOTRAC-2: Heart rate variability, biofeedback, and cognitive control over memory [Journal Club presentation]. Memory, Brain & Cognition Seminar, Paris, France.

Bögge, L. (2020, October 20). Ethics and data regulations and in human research [Seminar presentation]. Memory, Brain & Cognition Seminars, Paris, France.

Poster Presentations (Selection)

Bögge, L., Colàs, I., & Piolino, P. (2022, August 29 – September 01). HRV biofeedback evokes persisting improvements in attention, short-term memory, and positive self-referential episodic memory [Poster presentation]. European Society for Cognitive Psychology (ESCoP), France, Lille.

Bögge, L., Colàs, I., & Piolino, P. (2022, May 18-22). HRV biofeedback evokes persisting improvements in attention, short-term memory, and positive self-referential episodic memory [Poster presentation]. International Conference of Cognitive Neuroscience (ICON), Helsinki, Finland.

Five additional poster presentations at national and international conferences (full list available upon request).

Open Science Projects – BIOfeedback TRAining and Cognition (BIOTRAC)

BIOTRAC-1 – Persistent effects https://osf.io/u4t7p/

BIOTRAC-2 – False memory https://osf.io/593p6/ (pre-registration: https://osf.io/edhpc)

BIOTRAC-3 – Mental time travel https://osf.io/xgfdc/

Professional References

Prof. Pascale Piolino
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Google Scholar: https://scholar.google.com/citations?user=glfXTPEAAAAJ&hl=de
Relationship: PhD supervisor

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Google Scholar: https://scholar.google.com/citations?user=ghuzWgsAAAAJ&hl=fr
Relationship: Thesis examiner

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Google Scholar: https://scholar.google.com/citations?user=C6xOMkwAAAAJ&hl=de
Relationship: Member of PhD advisory committee

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Website: https://www.liphlab.com/people/ramon/
Relationship: Master internship project mentor, co-author on joint project