# Darinka Trübutschek

MARIE SKLODOWSKA-CURIE FELLOW IN COGNITIVE NEUROSCIENCE

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Married, two children (born August 2019 & December 2023)

### CURRENT POSITION

#### **Research Fellow**

MAX PLANCK INSTITUTE FOR EMPIRICAL AESTHETICS

- *Advisor*: Prof. Lucia Melloni
- **Project**: How does the immediate past shape current perception in the human brain?
- Techniques: psychophysics, eyetracking, EEG

# CAREER GAPS\_\_\_\_\_

Parental Leave	Oct 2023 - Dec 2024
Dedicated time for parental responsibilities	
Reduced Working Hours Due to Limited Childcare During COVID-19	Jan 2021 - Jun 2021
Managed academic responsibilities while navigating restricted childcare availability	
Full-Time Caregiver During COVID-19 Lockdown	Mar 2020 - Aug 2020
Provided full-time care for child during COVID-19 shutdown of childcare and research facilities	
Parental Leave	Jul 2019 - Dec 2019
Dedicated time for parental responsibilities	

# EDUCATION\_\_\_\_\_

PhD in Cognitive Neuroscience, with highest honors	Paris, France
Sorbonne Université	Nov 2014 - Oct 2018
<ul> <li>Advisor: Prof. Stanislas Dehaene</li> <li>Project: What is the relationship between conscious perception and working memory in the human brain?</li> <li>Techniques: psychophysics, eyetracking, MEG</li> </ul>	
MSc in Behavioral and Cognitive Neuroscience, magna cum laude	Paris, France
Université Pierre et Marie Curie	Sep 2012 - Dec 2013
<ul> <li>Advisor: Dr. Josselin Houenou</li> <li>Project: Emotional reactivity - A study of the anatomy and resting-state functional connectivity of the fronto-lin and healthy controls</li> <li>Techniques: MRI-based VBM, resting-state fMRI-based functional connectivity, DTI</li> </ul>	nbic network in bipolar patients
BSc with Honors in Psychology, summa cum laude (valedictorian)	Lexington, VA, USA
WASHINGTON & LEE UNIVERSITY	Sep 2007 - May 2010
RESEARCH & PROFESSIONAL EXPERIENCE	
Postdoctoral Research Fellow	Oxford, UK
University of Oxford	Jan 2019 - Dec 2020

- Advisor: Prof. Mark Stokes
- *Project*: How do memories shape the encoding and maintenance of future memories?
- Techniques: intracranial EEG

#### **Research Intern**

#### NeuroSpin

• Advisor: Dr. Sébastien Marti

Saclay, France

Jan 2014 - Oct 2014

Frankfurt/Main, Germany

Jan 2021 - ongoing

#### Postbaccalaureate Fellow in Functional Neuroimaging

DUKE UNIVERSITY

Durham, NC, USA Jun 2010 - Aug 2012

**BIAL** Foundation

Mar 2023 - Feb 2025

- Advisor: Prof. Tobias Egner
- **Project**: What are the neural correlates of declarative and procedural working memory?
- Techniques: fMRI

# GRANT FUNDING & FELLOWSHIPS

#### **BIAL Foundation Grant** CO-PI (TOGETHER WITH L. MELLONI)

<ul> <li><i>Project</i>: Event segmentation and time perception: understanding why time feels like flying</li> <li><i>Amount</i>: €56,000</li> </ul>	
Marie Sklodowska-Curie Individual Fellowship Principal Investigator	European Commission Sep 2022 - Nov 2025
<ul> <li><i>Project</i>: Cortical hierarchy of memories - deciphering the neuronal mechanisms of serial dep</li> <li><i>Amount</i>: €174,806.40</li> </ul>	pendence in the human brain
<b>Christiane-Nüsslein-Volhard Fellowship for Women in STEM</b> Principal Investigator	CNV Foundation Mar 2021 - Feb 2022
• <i>Amount</i> : €4,800	
Postdoctoral Fellowship Principal Investigator	Fondation Fyssen Jan 2019 - Dec 2020
<ul> <li><i>Project</i>: Dynamic activity-silent brain states underpin working memory in the human brain</li> <li><i>Amount</i>: €70,000</li> </ul>	
<b>Graduate Fellowship</b> Co-PI (together with S. Dehaene)	Fondation Schneider Electric Sep 2016 - Oct 2018
<ul> <li><i>Project</i>: Probing the limits of non-conscious working memory</li> <li><i>Amount</i>: €72,236</li> </ul>	
<b>Graduate Fellowship</b> Principal Investigator	Ecole des Neurosciences de Paris Sep 2012 - Aug 2016
• <i>Amount</i> : €150,000	
<b>Postbaccalaureate Fellowship in Functional Neuroimaging</b> Principal Investigator	Duke Brain Imaging and Analysis Center Jun 2010 - Aug 2012
• <i>Amount</i> : \$60,000	

#### R.E. Lee Summer Scholar

PRINCIPAL INVESTIGATOR

• *Amount*: \$3,000

# HONORS & AWARDS\_\_\_\_\_

L'Oréal-Unesco Prize for Women in Science National Award	2022
E10,000	
Prix de la chancellerie des universités de Paris	2019
Γhesis award (€10,000)	
NIH Kavli Summer Institute in Cognitive Neuroscience	2016
Fravel award	
Robinson Award in English Literature, History, and Social Sciences Jndergraduate academic award	2010

2009

Washington & Lee University

Honor Roll	2007 - 2010
Ranked among the top 20 % of the Washington & Lee University student body	
Election to Phi Beta Kappa	2009
National honor society for undergraduates ranked among the top 10 %	
Psychology Departmental Scholarship	2009
Awarded by Washington & Lee University	
James D. Davidson Memorial Fund Scholarship	2008
Awarded by Washington & Lee University	
Election to Phi Eta Sigma	2009
National honor society for freshmen ranked among the top 20 % of their class	
Congress/Bundestag Youth Exchange Scholarship	2004
Award to fund a 1-year high school exchange in Springfield, VA, USA	

# PUBLICATIONS.

name\* denotes co-authorship, <u>name</u> denotes student authorship.

#### **Published/Preprint**

How do subjective perception and memory shape one another?

#8. **Trübutschek, D.**\*, Kienitz, R.\*, <u>Winkler, M.</u>, <u>Öztürk, S.</u>, & Melloni, L. (to be submitted). Sequence learning without consciousness.

#7. Zheng, Z., **Trübutschek, D.**, Huang, S., Cai, Y., & Melloni, L. (2024). What you saw a while ago determines what you see now: The effect and temporal dynamics of awareness priming on implicit behavior. *PsyRXiv*.

#6. **Trübutschek, D.** & Melloni, L. (2023). Stable perceptual phenotype of the magnitude of history biases even in the face of global task complexity. *Journal of Vision, 23*(4), 1-20.

#5. **Trübutschek, D.** (2022). Context-independent item representations in human working memory. *Annals Fyssen No. 35*, 124-142.

#4. **Trübutschek**, **D.**, Marti, S., Ueberschär, H., & Dehaene, S. (2019). Probing the limits of activity-silent, nonconscious working memory. *PNAS*, *116*(28), 14358-14367.

#3. **Trübutschek**, **D.**, Marti, S., & Dehaene, S. (2019). Temporal-order information can be maintained in nonconscious working memory. *Scientific Reports*, 9(6484).

#2. **Trübutschek, D.**, Marti, S., Ojeda, A., King, J.-R., Mi, Y., Tsodyks, M., & Dehaene, S. (2017). A theory of working memory without consciousness or sustained activity. *eLife*.

#1. Naccache, L., Marti, S., Sitt, J. D., **Trübutschek, D.**, & Berkovitch, L. (2016). Why the P3b is still a plausible correlate of conscious access? A commentary on Silverstein et al., 2015. *Cortex, 85*, 126-128.

#### Shaping the future of neuroscience

#6. Aczel, B.\*, Szaszi, B.\*, ..., **Trübutschek, D.**, ..., & Nosek, B. A. (to be submitted). Investigating the analytical robustness of the social and behavioral sciences.

#5. Stockart, F.\*, Schreiber, M.\*, ..., **Trübutschek, D.**, ..., & Mudrik, L. (2024). Studying unconscious processing: towards a consensus on best practices. *PsyRXiv*.

#4. Sarafoglou, A., Hoogeveen, S., ..., **Trübutschek, D.**, ..., & Wagenmakers, E.-J. (2024). Subjective evidence evaluation survey for many-analyst studies. *Royal Society Open Science, 11*(7), 240125.

#3. **Trübutschek, D.**\*, Yang, Y.-F.\*, Gianelli, C.\*, Cesnaite, E., Fischer, N. L., Vinding, M.C., Marshall, T. R., Algermissen, J., Pascarella, A., Puoliväli, T., Busch, N., & Nilsonne, G. (2024). EEGManyPipelines: A large-scale, grassroots multianalyst study of electroencephalography analysis practices in the wild. *Journal of Cognitive Neuroscience, 36*(2), 217-224.

#2. Ruzzoli, M., ..., **Trübutschek, D.**, ..., & Veniero, D. (2023). An #EEGManyLabs study to test the role of alpha phase on visual perception (a replication and new evidence). *PsyRXiv*.

#1. Pike, A. C., ..., **Trübutschek, D.**, ..., & Noonan, M. P. (2022). 10 simple rules for a supportive lab environment. *Journal of Cognitive Neuroscience*, *35*(1), 44-48.

#### Pre-PhD

#2. Coyle, E. F., Fulcher, M., & **Trübutschek, D.** (2016). Sissies, mama's boys, and tomboys: Is children's gender nonconformity more acceptable when nonconforming traits are positive? *Archives of Sexual Behavior, 45*1827-1838.

#1. **Trübutschek**, **D.** & Egner, S. (2012). Negative emotion does not modulate rapid feature integration effects. *Frontiers in Psychology*, *3*(100).

#### **In preparation**

Zheng, Z., **Trübutschek, D.**, Aru, J., & Melloni, L. (in prep). The intrinsic feature filtering function from consciousness to working memory.

**Trübutschek**, **D**., Fischer, C., Bledowski, C., & Melloni, L. (in prep). Attractive biases in working memory arise at the level of decisions, not perception.

**Trübutschek, D.**, Vieten, I., Schwiedrzik, C. & Melloni, L. (in prep). Not so automatic? Active, but not latent working memory templates trump serial dependence.

**Trübutschek, D.**, Wasmuht, D., Spaak, E., & Stokes, M. (in prep). Dynamic brain states for flexible decision-making in working memory.

### **INVITED TALKS**

Colloquium Talk at the Leibniz Research Centre for Working Memory and Human Factors	Dortmund, Germany
TBD	2025
Brain Dynamics Days Keynote	Leipzia, Germany
Of moments and memories: How subjective perception and experience shape one another in the	1 3 3
human brain	2024
Faculty of Psychology at the University of Leiden	Online
Deciphering the neural code and computational principles of subjective perception and memory in the human brain	2023
Faculty of Psychology at the University of Graz	Graz, Austria
Deciphering the neural code of subjective perception and memory in the human brain	2023
Faculty of Medicine at Goethe University	Frankfurt/Main, Germany
Decomposing our inner life: Using time-resolved electrophysiology to decipher the neural code of subjective perception and memory in the human brain	2023
Women in Neuroscience Panel Discussion	Online
Family, maternity, and caring duties: finding work-life balance	2022
Neural Dynamics Forum at the University of Bristol	Online
Flexible decision-making in working memory	2022
65th Congress of the German Society for Clinical Neurophysiology and Functional Imaging	Online
Decoding our thoughts: Tracking the contents of (non-)conscious working memory	2021
Aggregate Intellect's Spotlight Seminar Series	Online
Decoding our thoughts: Tracking the contents of (non-)conscious working memory	2020
Barnes' Lab Meeting at University College London	London, UK
The neuro-cognitive architecture of complex working memory	2020
Royal Netherlands Academy of Arts and Sciences Colloquium on 'New Perspectives on Visual Working Memory'	Amsterdam, Netherlands
Characterizing the neuro-cognitive architecture of non-conscious working memory	2019
Stokes' Lab Meeting at the University of Oxford	Oxford, UK
Characterizing the neuro-cognitive architecture of non-conscious working memory	2018
Basque Center on Cognition, Brain and Language External Speaker Seminar Series	San Sebastian, Spain
Non-conscious working memory and its boundary conditions	2018
Ecole des Neurosciences de Paris Seminar Series	Paris, France
A theory of working memory without consciousness or sustained activity	2018
Egner Lab Meeting at Duke University	Durham, NC, USA
Disentangling the relationship between conscious perception and working memory	2015
Neurophilosophy Workshop of the Berlin School of Mind and Brain	Venice, Italy
(Un)conscious working memory?	2015

CONFERENCE PRESENTATIONS	
Symposium Talk at Psychologie und Gehirn	Hamburg, Germany
Challenging current theories of conscious perception? - The case of activity-silent, non-conscious 'working' memory	2024
Talk at the Association for the Scientific Study of Consciousness 26	New York, USA
Can we learn information non-consciously? - Exploring the relationship between non-conscious working memory and statistical sequence learning	2023
Poster at ICON 13	Amsterdam, Netherlands
The limits of non-conscious working memory	2017
Talk at the Association for the Scientific Study of Consciousness 21	Beijing, China
The limits of non-conscious working memory	2017
Talk & Poster at the Neuroscience Workshop Saclay	Gif/Yvette, France
Disentangling the relationship between conscious perception and working memory	2016
Poster at SFN	Chicago, IL, USA
(Un)conscious working memory? - Disentangling the relationship between conscious perception and working memory	2015
Symposium Talk at the Association for the Scientific Study of Consciousness 19	Paris, France
Perception and working memory during conscious and unconscious processing	2015
Poster at SRCD	Montréal, Canada
Male gender non-conformity and deragatory labels: Young adults' attitudes about and labels for preschoolers	2011
Poster at Science, Society, and the Arts Conference	Lexington, VA, USA
Effects of parental closeness on emerging adults' engagement in risk-taking behaviors and adult status	2009

# TEACHING, SUPERVISION, & MENTORING\_\_\_\_\_

Lehrprobe for Undergraduate Level Course on the Neural Correlates of Attention	May 2023
I prepared this lecture as part of a job application at the University of Graz and received very positive feedback for my didactic and eng	gaging
presentation - even compared to more experienced candidates.	
(Co-)Supervision of PhD Students since	e Sep 2021
3 students: Qiyuan Zeng, Maximilian Winkler, Zefan Zheng	
Supervision of Master Students since	e Sep 2021
2 students: Cécile Pernossi, Ilona Vieten (now PhD student with Florian Mormann)	
Supervision of Research Assistants & Undergraduate Interns sinc	e Sep 2021
5 students: Jana Taube, Chiara Grasso, Sophie Danielle Oprée, Tuba Özcan, Sümeyye Öztürk	
Mentor in the Letters to a Pre-scientist Program	2018-2019
This mentoring program pairs up a researcher and a elementary - high school student from a disadvantaged background to be pen pa duration of the academic year.	ls for the
Mentor in the Skype a Scientist Program	since 2017
This program allows school children from all over the world to interact with a researcher through skype.	
Teaching Assistant for an Undergraduate Laboratory Statistics Course at Washington & Lee University	2009
I prepared and led practical sessions accompanying an introductory statistics lecture, and designed and graded evaluations.	
Peer tutor in German and Psychology at Washington & Lee University	2008-2010
OUTREACH	
Deutschlandfunk Podcast "How does consciousness emerge? A bet between philosophy and experiment"	2023
I co-advised producers on scientific content & provided interview material.	
Brain Awareness Week Plenary Talk	2018
Together with Sébastien Marti, I gave a keynote on how our brain constructs conscious experience at the Paris Brain Awareness Week.	
NHK Documentary Series on the Human Body	2017
I co-advised producers on scientific content.	
ARTE Documentary "Déchiffrer la conscience"	2016
I co-advised producers on scientific content & participated in scenes on MEG data acquisition.	
Brain Awareness Week	2013
I co-organized a seminar on a head full of music at the Paris Brain Awareness Week.	
Brain Awareness Week	2011
I organized & hosted lab visits for the general public and gave introductory lectures on the brain in several local schools at the Durham Awareness Week.	ı Brain

# SERVICE TO THE COMMUNITY\_\_\_\_\_

#### **Editorial Board Member**

PCI Registered Reports

#### **Ad-hoc Peer Reviewer**

Behavioral Brain Research, Cerebral Cortex, Consciousness & Cognition, Imaging Neuroscience, Neuroscience of Consciousness, Scientific Reports, Quarterly Journal of Experimental Psychology

#### **Conference Organizer**

Co-organizer of the Neuroscience Workshop Saclay (NEWS 2017) on "Neural circuits and behavior: from cells to connectivity and function": 9 international plenary speakers, 8 local trainee speakers, 153 attendees

#### **Committee Member**

**Elected representative** for the Ecole des Neurosciences de Paris student body: managed annual budget, organized a seminar series on "New Frontiers in Neuroscience", coordinated cultural & social events; **steering committee member** of the EEGManyPipelines project

#### **Institutional Service**

Co-organizer of the NCC-Lab Seminar Series; social media manager of the Melloni lab; co-organizer of the weekly Consciousness Seminar in the Dehaene lab

### TECHNICAL SKILLS

Methods	ECoG, EEG/MEG, eyetracking, (f)MRI/DTI, psychophysics
Programming	Latex, Matlab, Python, R
Stimulus presentation	E-prime, Presentation, PsychoPy, Psychtoolbox
Data analysis	Brainstorm, Fieldtrip, FSL, MNE Python, scikit-learn, SPM, SPSS
Version control	git, gitHub
Operating systems	Linux, MacOS, Windows

### LANGUAGES\_\_\_\_\_

German	Native speaker
English	Native level
French	Fluent
Italian	Beginner

### MAJOR ONGOING COLLABORATIONS

Prof. Lucia Melloni	Max Planck Institute for Empirical Aesthetics, Frankfurt/Main, Germany
EEGManyPipelines project	World-wide collaboration
Dr. Ricardo Kienitz	Goethe University, Frankfurt/Main, Germany
Prof. Eelke Spaak	Donders Institute, Nijmegen, Netherlands
Dr. Christoph Bledowski	Goethe University, Frankfurt/Main, Germany

since 2024

since 2017

*2016-2017* ion": 9

since 2015

since 2014